An Oklahoma State University education is about providing choices and value. It's about people gathering together to investigate and discover, uncover opportunities and take on challenges. With more than 300 undergraduate and graduate degree programs and options, OSU is a premier land-grant institution with a world-wide reach. Our faculty includes leaders in their fields and an array of nationally published authors and scientists. Oklahoma State University provides world-class education to all students—full-time, part-time, adult and traditional.

Our investment in teaching and research creates an educational experience that is intellectually challenging and has practical value far beyond the classroom. OSU students learn hands-on while working with world-class experts, scientists, artists and intellectuals on cutting-edge research that is changing the way we live.

OSU has been recognized for its educational value by U.S. News & World Report, Forbes, Princeton Review, and Kiplinger. The Wall Street Journal listed OSU among the nation's top schools for best preparing graduates for success, as determined by corporate recruiters.

OSU also is home to nearly 1,400 valedictorians, and a long list of Rhodes, Truman, Marshall, Udall, Goldwater, Gates, Phi Kappa Phi and other national scholars. OSU allows students to stretch their learning with its nationally recognized Honors College, unique opportunities for undergraduate research and its LASSO (Learning and Academic Success Opportunity) Center.

With more choices, top faculty and cutting-edge resources all at a great value, Oklahoma State University is the place for a world-class education.

Oklahoma State University is accredited by the Higher Learning Commission (HLC)
A Commission of the North Central Association of Colleges and Schools and programs within the colleges are also accredited.

Higher Learning Commission (HLC)
30 N. LaSalle Street, Suite 2400
Chicago, IL 60602
800.621.7440
www.ncahigherlearningcommission.org
This Catalog offers information about the academic programs and support services of the University. This Catalog is as accurate as possible, but the information may not remain current for all of the academic year. Circumstances may prompt changes in courses, course content, credit, fees, regulations, semester calendar, curriculum, degrees offered, and other University matters. Such changes authorized by the University apply both to prospective students and to those previously enrolled, unless the latter are specifically exempted.

For information, write to Oklahoma State University, Stillwater, OK 74078, or call 405.744.5000; in Oklahoma, call toll free 1.800.233.5019. Send electronic mail requests to registrar@okstate.edu. Publications concerning a number of topics are also available upon request.

OSU information is available via the Internet:
- Main Page: go.okstate.edu
- Admission: admissions.okstate.edu
- Catalog and Class Schedule: registrar.okstate.edu

The summer and fall class schedules are available in March and the spring class schedule in October and each may be obtained via the Internet at the link above.

An application packet and viewbook, with information for prospective students on admission, residence halls, financial aid, scholarship, and the Honors College, is available from the Office of Undergraduate Admissions.

The OSU Catalog may be obtained by new students during their new student orientation session prior to their first semester at OSU. Other persons may purchase the Catalog through the Student Union Bookstore by mail. The current catalog is made available at the website address above prior to the beginning of the fall term.

To purchase a copy of the OSU Catalog contact the Student Union Bookstore at 1.800.831.4678. The domestic rate for the Catalog is $6.00 plus postage. The international rate is USD ($6.00 for the Catalog plus actual postage costs).

In addition to these publications, many of OSU’s colleges, schools and departments have printed material concerning their programs. Contact the individual departments for specific information.

Oklahoma State University in compliance with Titles VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Educational Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, sex, age, religion, disability or status as a veteran in any of its policies, practices or procedures. This includes, but is not limited to, admissions, employment, financial aid and educational services. Title IX of the Education Amendments and Oklahoma State University policy prohibit discrimination in the provision or services or benefits offered by the university based on gender. Any person who believes that discriminatory practices have been engaged in based on gender may discuss his or her concerns and file informal or formal complaints of possible violations of Title IX with OSU’s Title IX coordinator: the Director of Affirmative Action, 408 Whitehurst, Oklahoma State University, Stillwater, OK, 74078, (405) 744-5371 or (405) 744-5576 (fax).

Cover artwork courtesy of University Marketing.

University Catalog design and maintenance by Susan Willoughby, Communication Specialist, Office of the Registrar.

This publication, issued by Oklahoma State University, as authorized by the Office of the Registrar, was printed by the Oklahoma Department of Career and Technology Education, Stillwater, OK, at a cost of $9,000/1.5M/July7.
# Table of Contents

5  University Academic Calendar  
6  The Administration  
7  Message from the President  
8  The University  
13  Institutional Diversity  
15  Undergraduate Admissions  
19  International Undergraduate Admissions  
20  Degree Programs  
30  New Student Orientation and Enrollment  
31  Registrar  
34  Scholarships and Financial Aid  
36  Tuition, Fees and Cost Estimates  
41  Bursar  
43  Academic Enrichment Programs  
44  Special Academic Services, Programs and Facilities  
51  Student Services  
56  University Police Services  
59  Student Code of Conduct  
60  Alumni Association, Foundation, OSU OKC, OSU IT and OSU Tulsa  
63  University Academic Regulations  
71  College of Agricultural Sciences and Natural Resources  
80  College of Arts and Sciences  
99  College of Education  
111  College of Engineering, Architecture and Technology  
125  College of Human Sciences  
131  Spears School of Business  
139  Center for Health Sciences  
141  Center for Veterinary Health Sciences  
143  University Faculty  
151  Graduate College Academic Calendar  
152  Graduate College  
169  Graduate Faculty  
195  Course Descriptions
University Academic Calendar

Add, drop, withdrawal and refund dates listed below are for courses that extend through the entire term. Proportionate dates apply to block and short courses. See the ‘Class Schedules’ page of the Registrar website at registrar.okstate.edu for more information.

### 2014-2015 and 2015-2016**

<table>
<thead>
<tr>
<th></th>
<th>FALL 2014</th>
<th>SPRING 2015</th>
<th>SUMMER 2015 (8 wk session #2)</th>
<th>FALL 2015</th>
<th>SPRING 2016</th>
<th>SUMMER 2016 (8 wk session #2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late enrollment fee assessed after this date</td>
<td>Aug. 15</td>
<td>Jan. 9</td>
<td>June 5</td>
<td>Aug. 14</td>
<td>Jan. 8</td>
<td>June 3</td>
</tr>
<tr>
<td>Class work begins</td>
<td>Aug. 18</td>
<td>Jan. 12</td>
<td>June 8</td>
<td>Aug. 17</td>
<td>Jan. 11</td>
<td>June 6</td>
</tr>
<tr>
<td>University Holiday (spring)</td>
<td>Jan. 19</td>
<td>Jan. 19</td>
<td></td>
<td>Jan. 18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% Refund, Nonrestrictive Drop/Add Deadline*</td>
<td>Aug. 25</td>
<td>Jan. 20</td>
<td>June 10</td>
<td>Aug. 24</td>
<td>Jan. 19</td>
<td>June 8</td>
</tr>
<tr>
<td>Partial Refund, Restrictive Drop/Add Deadline*</td>
<td>Aug. 29</td>
<td>Jan. 23</td>
<td>June 12</td>
<td>Aug. 28</td>
<td>Jan. 22</td>
<td>June 10</td>
</tr>
<tr>
<td>University Holiday (fall)</td>
<td>Sep. 1</td>
<td>Sep. 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six week grades due from faculty</td>
<td>Sep. 30</td>
<td>Feb. 24</td>
<td>Sep. 29</td>
<td>Feb. 23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students’ Fall Break</td>
<td>Oct. 24</td>
<td>Mar. 16-20</td>
<td>to be determined</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deadline to file diploma application (for name to appear in fall commencement program)</td>
<td></td>
<td></td>
<td>Nov. 3</td>
<td></td>
<td>Nov. 2</td>
<td></td>
</tr>
<tr>
<td>Deadline to file diploma application (for name to appear in spring commencement program)</td>
<td></td>
<td></td>
<td>April 1</td>
<td>April 1 (2015)</td>
<td>April 1</td>
<td>April 1 (2016)</td>
</tr>
<tr>
<td>University Holiday (summer)</td>
<td></td>
<td></td>
<td>July 3</td>
<td></td>
<td>July 4</td>
<td></td>
</tr>
<tr>
<td>W Drop/Withdraw Deadline*</td>
<td>Nov. 7</td>
<td>April 10</td>
<td>July 17</td>
<td>Nov. 6</td>
<td>April 8</td>
<td>July 15</td>
</tr>
<tr>
<td>WiFi Withdrawal Deadline*</td>
<td>Nov. 21</td>
<td>April 24</td>
<td>July 24</td>
<td>Nov. 20</td>
<td>April 22</td>
<td>July 22</td>
</tr>
<tr>
<td>Students’ Thanksgiving break</td>
<td>Nov. 26-28</td>
<td>Nov. 25-27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Holiday (fall)</td>
<td>Nov. 27-28</td>
<td>Nov. 26-27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Finals Week</td>
<td>Dec. 1-5</td>
<td>Apr. 27-May 1</td>
<td>Nov. 30-Dec. 4</td>
<td>April 25-29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class work ends</td>
<td>Dec. 5</td>
<td>May 1</td>
<td>July 31</td>
<td>Dec. 4</td>
<td>April 29</td>
<td>July 29</td>
</tr>
<tr>
<td>Final examinations</td>
<td>Dec. 8-12</td>
<td>May 4-8</td>
<td>Dec. 7-11</td>
<td>May 2-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commencement weekend</td>
<td>Dec. 12-13</td>
<td>May 8-9</td>
<td>Dec. 11-12</td>
<td>May 6-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades due electronically from faculty</td>
<td>Dec. 16</td>
<td>May 12</td>
<td>Aug. 4</td>
<td>Dec. 15</td>
<td>May 10</td>
<td>Aug. 2</td>
</tr>
<tr>
<td>University Holiday (fall)</td>
<td>Dec. 24-Jan. 2</td>
<td>Dec. 24-Jan. 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Intersessions and Pre-Sessions

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Pre-Session</td>
<td>Aug. 4-15</td>
<td></td>
<td>Aug. 3-14</td>
</tr>
<tr>
<td>Winter Intersession</td>
<td>Dec. 15-Jan. 9</td>
<td></td>
<td>Dec. 14-Jan. 8</td>
</tr>
<tr>
<td>Summer Pre-Session (summer session #1)</td>
<td>May 18-June 5</td>
<td></td>
<td>May 16-June 3</td>
</tr>
</tbody>
</table>

### Summer 4-Week Sessions

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4-week session (summer session #3)</td>
<td>June 8-July 2</td>
<td></td>
<td>June 6-July 1</td>
</tr>
<tr>
<td>4-week session (summer session #4)</td>
<td>July 6-31</td>
<td></td>
<td>July 5-29</td>
</tr>
</tbody>
</table>

**Drop/Add and Withdraw Deadline Details:**

100% Refund, Nonrestrictive Drop/Add Deadline:
- add a course (nonrestrictive)
- drop a course with 100% refund and no grade

Partial Refund, Restrictive Drop/Add Deadline:
- add a course (requires instructor and adviser signatures)
- drop a course with partial refund and grade of “W” (requires adviser signature)

W Drop/Withdraw Deadline:
- drop a course with automatic grade of “W” (requires adviser signature)
- withdraw from all courses with automatic grades of “W” (requires completed Withdrawal Form)

W/F Withdrawal Deadline:
- withdraw from all courses with assigned grades of “W” or “F” (requires completed Withdrawal form)

**tentative
The Administration

Oklahoma State Regents for Higher Education
Michael C. Turpen—Chair, Oklahoma City
John Massey—Vice Chair, Durant
Gen. Toney Stricklin—Secretary, Lawton
Marlin “Ike” Glass, Jr.—Member, Newkirk
James D. “Jimmy” Harrel—Member, Leedey
Jay Helm—Member, Tulsa
Ann Holloway—Member, Ardmore
Joseph L. Parker, Jr.—Member, Tulsa
Dr. Ronald H. White—Member, Oklahoma City
Dr. Glen D. Johnson—Chancellor

Board of Regents for Oklahoma State University/A&M Colleges
Rick Davis—Chair, Guthrie
Joe D. Hall—Vice Chair, Elk City
Calvin J. Anthony—Member, Stillwater
Douglas E. Burns—Member, Norman
Andy W. Lester—Member, Edmond
Tucker Link—Member, Finley
Trudy Milner—Member, Tulsa
Jim Reese—Member, Nardin
Lou Watkins—Member, Stillwater

OSU Executive Team
V. Burns Hargis, JD—President
Gary Sandefur, PhD—Provost and Senior Vice President for Academic Affairs
Chris Batchelder, BS—President, OSU Alumni Association
Lee E. Bird, PhD—Vice President for Student Affairs
Gary C. Clark, JD—Senior Vice President and General Counsel
Thomas Coon, PhD—Vice President for Agricultural Programs and Dean of the Division of Agricultural Sciences and Natural Resources
Mike Holder, MBA—Vice President for Athletic Programs and Director, Intercollegiate Athletics
Kirk Jewell, PhD—President and CEO, OSU Foundation
Jason Kirksey, PhD—Associate Vice President of Institutional Diversity
Gary Shutt, BS—Director of Communications
Sheryl Tucker, PhD—Interim Vice President, Research and Technology Transfer and Associate Provost, Graduate Education
Joseph Weaver, MS—Senior Vice President for Administration and Finance
Kyle Wray, MA—Vice President for Enrollment Management and Marketing

Academic Deans
Pamela S. Carroll, EdD—Dean of the College of Education
Thomas Coon, PhD—Dean of the Division of Agricultural Sciences and Natural Resources and Vice President of Agricultural Programs
Bret S. Danilowicz, PhD—Dean of the College of Arts and Sciences
Kenneth Eastman, PhD—Dean of the Spears School of Business
Keith Garbutt, PhD—Dean of the Honors College
Sheila G. Johnson, MLS—Dean of Libraries
Jean E. Sander, DVM—Dean of the Center for Veterinary Health Sciences
Paul J. Tikalsky, PhD—Dean of the College of Engineering, Architecture and Technology
Sheryl Tucker, PhD—Dean of the Graduate College
Stephan M. Wilson, PhD—Dean of the College of Human Sciences

Selected administrators directly responsible for academic and service programs for students:
Laurie Beets, MS—Bursar
K. Celeste Campbell, PhD—University Registrar
Christine Crenshaw, MBA—Director of Undergraduate Admissions
Joshua Ward, PhD—Director of Scholar Development and Recognition
Chad Blew—Director of Scholarships and Financial Aid
Message from the President

Welcome to Oklahoma State University!

We are delighted you are pursuing your all-important higher education degree at OSU.

This catalog shows the incredible breadth of academic offerings available to you at OSU. With more than 300 undergraduate and graduate degree programs and options, as well as professional degree programs in medicine and veterinary medicine, OSU provides outstanding choice and value at a comprehensive research university.

Oklahoma State University is proud of its heritage as one of our nation’s leading land-grant universities and remains fully committed to the land-grant mission of teaching, research and outreach. We provide a creative, innovative, collaborative learning environment that prepares students to use their knowledge to become active citizens and positive leaders who will make the world a better place.

We are glad you are here at Oklahoma State University and wish you all the best as you prepare for a world of possibilities.

V. Burns Hargis
The University

The History

Oklahoma State University was founded on December 25, 1890, as Oklahoma Agricultural and Mechanical College, just twenty months after the Land Run of 1889. When the first students assembled for class on December 14, 1891, no buildings, books or curriculum existed. Since its beginning as a land-grant institution, OSU has held true to the land-grant mission of instruction, extension and research.

In 1894, two and one-half years after classes began in local churches, 144 students moved into the first academic building, later named Old Central, which is still located on the southeast corner of campus and today houses the OSU Honors College. In 1896, Oklahoma A&M held its first commencement with six male graduates.

On July 1, 1957, Oklahoma A&M College became Oklahoma State University. Technical branches were established in Okmulgee in 1948 and in Oklahoma City in 1961. In 1990 these two technical branches were renamed OSU-Okmulgee and OSU-Oklahoma City; and in 2008 OSU-Okmulgee was renamed OSU Institute of Technology. OSU-Tulsa was formed in 1999 from a consortium of universities that were originally established in 1982. In July of 1988, the Oklahoma Colleges of Osteopathic Medicine and Veterinary Medicine merged to become the College of Osteopathic Medicine of OSU. In 2001, it became part of the OSU Center for Health Sciences, which also has an affiliation with its primary teaching hospital, the OSU Medical Center.

OSU is located in Stillwater, a north-central Oklahoma community with a population of around 50,000. Stillwater is approximately 60 miles from the Tulsa and Oklahoma City metropolitan areas and is readily accessible from other major population centers by interstate highway and air.

This coeducational University has an enrollment of more than 36,000 students on five campuses. It offers bachelor's, master's and doctor's degrees in a large number of fields, as well as the professional Doctor of Osteopathic Medicine and Doctor of Veterinary Medicine degrees. Specialist in Education degrees are also offered in selected fields.

Although OSU is a large, comprehensive university, its size does not minimize the personal attention given to each student. The individual is more than just a number at this university; OSU encourages all students, when they first enroll, to identify the college in which they wish to major. Once the student has identified his or her major department, he or she becomes a very important individual to the faculty and advisers of that department. Because the average number of students majoring in any one department is less than 150, the student can count on personal attention in a friendly environment.

As a comprehensive land-grant institution, OSU offers students many distinct advantages. It has nearly four million volumes in the library's collection, modern research laboratories and equipment, excellent physical education, recreation and student union facilities, nearly 500 student organizations, nationally recognized residence hall programs, outstanding cultural events, and nearly 40 nationally-affiliated fraternities and sororities that provide a stimulating educational and social environment.

The Mission

Proud of its land-grant heritage, Oklahoma State University advances knowledge, enriches lives, and stimulates economic development through instruction, research, outreach and creative activities.

Student Profile

Oklahoma State University has a diverse student body. Students come not only from Oklahoma, but from across the nation and world. Of OSU's more than 36,000 students, approximately 66 percent are on the Stillwater campus, (including students at the Center for Veterinary Health Sciences). The remaining student population is spread over the OSU System's four other campuses: OSU-Oklahoma City, OSU Institute of Technology in Okmulgee, OSU-Tulsa and the OSU Center for Health Sciences in Tulsa. Seventy-two percent of the undergraduates enrolled are Oklahoma residents; 25 percent are out of state residents; and three percent from 122 foreign countries. Of the undergraduate population, 51 percent are men and 49 percent are women. Domestic minorities make up approximately 25 percent of the undergraduate student body. The six year graduation rate of full-time, degree-seeking undergraduate students is 80 percent.

There are more than 5,900 graduate students throughout the OSU System. Over 5,000 of those students are on the Stillwater campus. Of those, 47 percent are Oklahoma residents; 29 percent are out of state residents; and 24 percent from foreign countries. Fifty-five percent of graduate students are men and 45 percent are women. Domestic minorities make up 20 percent of the graduate student body.

An annual report regarding gender equity in OSU’s athletic programs is available upon request from the Athletic Department.

Research

Research has been one of the three essential components of the OSU mission since the University’s inception. It adds richness and depth to the other mission components of teaching and outreach. Research findings improve quality of life by bringing new products, processes and medicines to the marketplace. Research through innovation is the engine that drives economic development. Research through the social sciences and humanities improves our well being. Research through creative artistry enhances our view and appreciation of the world.

OSU’s researchers are engaged in research across the full spectrum of human endeavor and inquiry, including areas of state and national priority. Research in plant and animal science places OSU at the forefront of agricultural biotechnology research. OSU researchers also participate in initiatives to understand and advance the role of sustainability in all aspects of our lives. This includes the development of biofuels and many other projects to increase energy efficiency. OSU’s energy research is focused on providing solutions for the current and future needs of the nation as our scientists work in collaboration with private, state and federal sectors to enable the nation’s transition to a sustainable energy future. OSU’s sensor-related researchers investigate more effective ways to protect our nation’s food, our environment and our first responders. Research into many aspects of aerospace, from control engineering to human space flight, enables OSU to support a nation’s growing aerospace economy of the state. OSU is a national leader in the design of unmanned aerial systems. The University is the first in the world to offer a graduate degree option for UAS. These and many other research areas are currently active within our University community, each contributing to the enhancement of the quality of all our lives.

The Division of the Vice President for Research and Technology Transfer administers research across the OSU System. The division is comprised of several units:

- The Research Administration office (research.okstate.edu) is responsible for research government, operations and special programs including OSU Research Week, the Regents Distinguished Research Awards, the Niblack Research Scholars program, conflict of interest, complaints of scientific misconduct, core facilities and facilities renovation/development programs, and the University cost-share and University start-up programs.
- The Technology Development Center (tdc.okstate.edu) manages OSU’s innovative technologies and other intellectual property for the benefit of the University and the public. In carrying out this mission, personnel work with faculty, staff, administrators and students to protect OSU’s intellectual property and license it to commercial firms.
- The University Center for Proposal Development (ucpd.okstate.edu) works closely with faculty, staff and administration across colleges and campuses at OSU to develop strong and competitive external funding proposals. An experienced grant writer is available to provide a wide range of pre-award services, advice and information to strengthen and enhance proposal quality.
- The Office of University Research Compliance (compliance.vpr.okstate.edu) ensures compliance with federal, state and University regulations that set forth requirements for the responsible conduct of research. Working through faculty committees, it oversees research involving human subjects, animal models, radiological materials, certain hazardous agents and recombinant DNA.
- The Office of University Research Services (urs.okstate.edu) is the document control center for the routing of all proposals and awards throughout the University. It provides support to faculty and staff (through information about funding opportunities, and training seminars); posts online research expenditure, abstracts and video highlights; and provides guidance for compliance with federal export control regulations that govern the conduct of research and export of specific technologies that may have an impact on national security and trade.
- The High Performance Computing Center (hpc.it.okstate.edu) provides high performance computing services and computational science expertise that enables faculty, staff, and students to conduct a wide range of focused research, development, and test activities. Its main objective is to facilitate research and aid in educational advancement by integrating state-of-the-art high performance computing technology for multidisciplinary units across the OSU campus and throughout Oklahoma.
- The National Energy Solutions Institute (nesi.okstate.edu) fuses the needs of private industry in energy production, distribution and conservation with practical and impactful academic research. NESI research provides energy solutions for the current and future needs of the nation, our state and our federal partners. It works in collaboration with private, state and federal sectors to enable the nation’s transition to a sustainable energy future.

Research Centers and Facilities. OSU has multiple research centers and facilities throughout the state. The Advanced Technology Research Center

The 2014-2015 University Catalog
houses programs from the College of Engineering, Architecture and Technology. The Robert M. Kerr Food & Agricultural Products Center provides large and small businesses, producers and entrepreneurs access to faculty and staff with expertise in business and technical disciplines. The FAPC seeks to develop successful value-added enterprises in Oklahoma. The Noble Research Institute houses programs from OSU’s geology, entomology & plant pathology and biochemical & molecular biology departments. The OSU Microscopy Laboratory is a multi-user, shared instrumentation facility for materials research spanning from nanotechnology to biology and medicine. The lab offers microscopy support for research projects by students, faculty and staff of OSU as well as outside entities on a fee basis. The Helmrich Advanced Technology Research Center serves as a state-of-the-art research, development, testing and education center located on the OSU-Tulsa campus. Faculty from civil engineering, electrical engineering and materials science and engineering work collaboratively there on research and graduate education. The Henry Bellmon Research Center houses six of OSU’s leading interdisciplinary research programs: synthetic chemistry, biodiversity, biophysics, photonics, bioforensics, and biogeophysics. Completed in 2010, the HBRC is the first Stillwater campus building dedicated exclusively to research. The Oklahoma Technology and Research Park is a 160-acre site uniquely designed for collaboration among tenants while providing custom facilities for technology-based or knowledge-driven companies in all stages of development. The Venture I building at OTRP consists of OSU labs and two private sector labs. The Michael S. Morgan Accelerator Building is designed to support technology-based economic development in the technology park. The University Multispectral Laboratories (UML) are a self-supporting “trusted agent” Research, Development, Test, and Evaluation (RDT&E) complex certifying a wide variety of fully tested and reliable sensor and security systems for government, industry, and academia. The UML is uniquely positioned to fuse both technical, and in the case of hyperspectral systems integration to better advance transitional technology from bench top to the end user. For more detailed information about OSU’s research centers, visit www.researchcenters.okstate.edu.

The Center for Innovation and Economic Development (cied.okstate.edu): CIED serves OSU’s commitment to economic development through sharing University “know how” (Research), building entrepreneurial strengths (Instruction) and participating in regional strategic alliances (Outreach) that create jobs and wealth for the citizens of Oklahoma.

Cowboy Technologies, LLC (cowboytechllc.com): Cowboy Technologies was organized in 2011 as a for-profit, limited-liability company with a mission to catalyze Oklahoma’s technology sector through entrepreneurship and innovation. Cowboy Technologies was founded to be a catalyst for commercializing university inventions. The company’s goals run parallel with that of OSU’s land-grant mission of taking University research from “Campus to Community”.

Oak Ridge Associated Universities. Since 1980, students and faculty of Oklahoma State University have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students gain access to federal opportunities. The University of Tennessee and Oak Ridge National Laboratory, with a mission to be a catalyst for commercializing university inventions, the company’s goals run parallel with that of OSU’s land-grant mission of taking University research from “Campus to Community”.

Outreach

International Studies and Outreach (IS&O) – iso.okstate.edu – Oklahoma State University’s long and proud tradition of excellence in International Studies and Outreach has been an integral part of the post-World War II era when US President Harry S. Truman appointed OSU President Henry G. Bennett as the first Chief Executive Officer of the Point Four Program. This program is known today as the United States Agency for International Development (USAID). Over the past half-century, hundreds of faculty members have served abroad on numerous projects sponsored by the United States Government and private foundations. Faculty members are increasingly engaged in research and outreach dealing with international trade and development and have contributed extensively to scholarships on global issues. Dr. Henry G. Bennett’s international legacy and OSU’s long-standing dedication to international relations and outreach is evident in the university’s continued international endeavors and significant international student population. The current OSU student body represents more than 100 countries in its academic instruction, research and service activities.

Continuing its commitment to provide superior internationalization strategies and outreach programs and services, OSU formed the Office of International Studies and Outreach, formerly International Education and Outreach. IS&O serves as a catalyst for the internationalization of OSU and actively promotes the university’s engagement with international and intercultural communities by compelling educational needs and advancing the development of Oklahoma State University. IS&O is responsible for the following units and activities:

The School of International Studies (SIS) – sois.okstate.edu – was dedicated April 1, 1999, to meet the challenge of preparing tomorrow’s educated persons for a world in a global community. SIS is an interdisciplinary and multi-cultural unit that draws resources from OSU Stillwater’s eight academic units. The rich multicultural and multidisciplinary expertise at OSU is reflected in the diversity of professional experience and academic disciplines of more than 150 faculty members who contribute to SIS. SIS is comprised of the following units:

The SIS Academic Programs

Graduate Program in International Studies offers three options in its multidisciplinary graduate program, including the Master of Science in International Studies, the Graduate Certificate in Global Issues and the Master’s International Program. Students select courses from a rich variety of subjects taught by the aforementioned nationally and internationally recognized SIS faculty. Native English speakers must complete at least five hours of intermediate or advanced foreign language study with a grade of at least “C,” or attain intermediate rating on the ACTFL Oral Proficiency Interview prior to program completion. Students in the program come from across the nation and around the globe.

Master of Science in International Studies — Students complete 33 credit hours that include four core courses, four to five courses in a designated Focus Area (focus areas include International Trade and Development; International Business and Economic Relations; International Human Development, Society and Education; Preservation of Environmental and Ecological Resources; and Culture, Heritage, and Tourism Development) and two to three elective courses. Students are also required to participate in an international experience. Students complete their degree with either a thesis or a creative component. The SIS graduate program also offers a dual degree option with two universities in Mexico: Universidad Popular Autonoma del Estado de Puebla (UPAEP) and Universidad de las Americas (UDLA).

Master’s International Program (MIP) — This program provides the opportunity to incorporate Peace Corps service into the MS in International Studies degree plan. Candidates complete 24 credit hours before entering the Peace Corps. After completion of their service, students return and enroll in an additional nine hours to finish their degree. These final hours involve preparing reports related to their activities and in the Peace Corps.

Graduate Certificate of Global Issues — After completion of a bachelor’s degree, students can receive a Certificate in Global Issues by taking 15 credit hours in International Studies. Certificate students complete three of the core courses and two courses selected from a focus area.

Undergraduate Minor in International Studies – All undergraduate students at Oklahoma State University (OSU) may obtain an international studies minor, regardless of their primary academic major. Courses within the minor encourage students to understand social, political, economic and cultural contrasts throughout the world. The minor in international studies will encourage students to develop skills by participating in study abroad or service learning experiences abroad prior to graduating. Furthermore, this will provide formal evidence of international study on one’s transcript and resume that otherwise may not be evident. The minor in international studies will also increase demand for OSU’s international-related courses resulting in an increase in course development and offerings. Students will structure their minor from three clusters of courses and learning experiences encompassing International Decision Making (6 credit hours), International Environment (9 credit hours) and International Experience (3 credit hours). In addition, each student must complete 10 credit hours of a foreign language or demonstrate proficiency through examination. International students will be exempt from the International Experience.

The Study Abroad Office coordinates reciprocal exchange agreements with 80 countries in over 35 countries through the OSU National Student Exchange. The office provides personalized advising on study, research, internships, and service programs abroad. Academic support and pre-approval of courses to be taken abroad, along with support both during and after the international sojourn, are provided for all interested students. Study abroad programs offer students the opportunity to experience different peoples, languages and customs and to gain essential global competence. OSU set a goal to provide every undergraduate student with a meaningful international experience prior to graduation, which study abroad can fulfill. Two one-credit courses are offered by the study abroad staff to help students maximize their experience abroad. The office also administers three International Studies & Outreach scholarships that serve as incentives for study abroad participation - the Provost’s Study Abroad Scholarship, the Don and Cathay Humphreys Scholarship, and the Gerry Auel First Passport Grant.

The English Language Institute is an intensive English program which strives to equip its students with the English proficiency, academic skills, and cultural knowledge necessary to gain entrance to and achieve success at Oklahoma State University. Current offerings include a 90-hour Intensive English Program which is also suitable for individuals who wish to learn English for business or personal reasons. English language and culture programs can be tailored to meet the needs of educational institutions, businesses and government sponsoring organizations.

The International Outreach Unit (IOU) promotes international research, education and development on behalf of the Oklahoma State University and the state of Oklahoma through building worldwide linkages; pursuing and coordinating collaborative projects; and reaching out to state, national and international audiences. During Spring, Summer and Winter, the IOU Unit serves and provides high quality short-term academic programs for foreign individuals in order to achieve and maintain a global mindset in the participants. The three (3) programs are: Experience Oklahoma, Faculty Led and High Summer Semester Academy.
IO houses the following components:

The OSU-Mexico Liaison Offices are housed in the Wes Watkins Center and supported by the Division of International Studies & Outreach. The OSU-Mexico Liaison Offices provide bilateral exchanges between the United States and Mexico, increases in the number of OSU students studying abroad in Mexico and increases the number of Mexican students enrolled at OSU. The OSU-Mexico Liaison Offices also aid in preparation of exchanges with Mexican universities, provides professional contacts and serves as a local expert resource about Mexico. Two OSU university partners currently house on-site offices and staff at OSU; the Universidad Popular Autónoma del Estado de Puebla (UPAEP) and Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM).

The Fulbright Resource Center assists students, recent graduates, faculty members, developing professionals and artists in pursuit of Fulbright Grants for international opportunities in research, study, teaching or creative activities abroad. The Fulbright Resource Center is a newly established award established in 1946 by Arkansas Senator J. William Fulbright to increase international understanding through educational exchange.

Peace Corps Support is provided by IS&O as needed for a regional Peace Corps recruiter who visits OSU to recruit students and provide Peace Corps information at various learning and career fairs. Oklahoma State University has produced over 450 Peace Corps volunteers.

Phi Beta Delta is an international honor society dedicated to recognizing scholarly achievement in international education. The Phi Beta Delta Epsilon Upsilon chapter was founded at OSU in December 2003 and currently has over 100 members. Undergraduates, graduate students, faculty and staff in international education and service are encouraged to apply for this prestigious honor society for international scholars.

OSU Correspondence Education – ce.okstate.edu/

In order to provide higher education opportunities to underserved or restricted populations, OSU provides a variety of courses via correspondence education (CE) to individuals across the state, nation and world using various media and partnerships with academic units at OSU. Individuals enrolled in correspondence education courses would often otherwise be unable to access higher education due to work, family responsibilities, physical isolation or medical conditions that would otherwise be unable to access higher education due to work, family responsibilities, physical isolation or medical conditions that may preclude participation in regularly scheduled mass meetings. OSU offers approximately 100 CE courses for college credit and continuing education units (CEUs). For most CE courses, students may enroll at any time without being admitted to OSU and are allowed up to one year to complete course work. CE courses are based on a traditional correspondence, web or DVD/video-assisted TELEcourses or online courses. For more information on correspondence education, call 405.744.6390. For other distance learning courses at OSU, contact the O-Campus help line at 405.744.6786, email to ocampus@okstate.edu or visit ocampus.okstate.edu.

Wes Watkins Center Conference and Meeting Services – wwc.okstate.edu – provides office space and meeting facilities to serve the needs of International Studies & Outreach, OSU and Oklahoma. The Wes Watkins Center is home to OSU International Studies & Outreach and serves as a central location for international events, business meetings, social events and conferences at OSU as well as for Stillwater, the State of Oklahoma and region.

In addition to the center’s international agenda, it offers over 42,000 square feet of meeting space, on-site conference management, event logistics consultation, in-house catering and off-site catering to choose from for catered events, in-house decorative services and technological equipment to accommodate any meeting or event need.

Wes Watkins Center for International Trade and Development - citd.okstate.edu - The Wes Watkins Center for International Trade and Development (CTID) is housed on both international trade and international development on the behalf of OSU and the state of Oklahoma. The Wes Watkins Center is home to OSU International Studies & Outreach and serves as a central location for international events, business meetings, social events and conferences at OSU as well as for Stillwater, the State of Oklahoma and region.

OSU Outreach Administration – Educational activities offered by OSU Academic Unit Outreach Offices and IS&O enable students on and off campus to enroll in Distance Learning Master Programs, a number of online undergraduate courses and study abroad opportunities and a diverse array of noncredit training opportunities that are also open to community members.

Outreach Programs and services flow primarily from decentralized program units and are delivered by college faculty, adjunct faculty and staff. Outreach support is provided by International Studies & Outreach to all OSU Academic Unit Outreach Programs through committee support, credit course coordination, data system support and report coordination.

For more information about IS&O, contact: International Studies & Outreach, 405.744.6066, iso.okstate.edu

General Education

Oklahoma State University is committed to producing graduates who have a depth of knowledge in their major fields of study and a breadth of general knowledge to address issues in a complex society. OSU graduates have a mastery of a specific subject matter and solid, diversified general education.

OSU's commitment to breadth in general education, the following philosophy was adopted in 2001.

General Education at Oklahoma State University provides students general knowledge, skills and attitudes conducive to lifelong learning in a complex society. Specifically, general education at Oklahoma State University is intended to provide a broad foundation for the student’s specialized course of study; develop the student’s ability to read, observe and listen with comprehension; enhance the student’s skills in communicating effectively; expand the student’s capacity for critical analysis and problem solving; assist the student in understanding and respecting the diversity in people, beliefs and societies; and develop the student’s ability to appreciate and function in the human and natural environment.

General education courses are aligned with one of four content areas: analytical and quantitative thought (A), humanities (H), natural sciences (N), and social and behavioral sciences (S). Oklahoma State University students must take both an international dimension course (I) and in natural sciences courses that include a lab component and have a scientific investigation (L) designation. As of Fall 2008, all new students are required to complete a diversity (D) course. A course is qualified to part of the general education curriculum if it meets the needs of students in all disciplines without requiring extensive specialized skills and satisfies all the criteria for a specific general education area. The criteria for each general education area follow:

Analytical and Quantitative Thought (A) courses incorporate the study of systems of logic and the mathematical sciences and place primary emphasis on the development of the intellect through inductive and/or deductive processes. Their aim is broader than proficiency in techniques and includes appreciation of how the processes can supplement intuition and provide ways to analyze concrete problems. Goals of “A” courses are to prepare students to critically analyze and solve problems using quantitative, geometric or logical models; form inferences using logical systems and mathematical information and communicate them in writing; give appropriate multiple representations (symbolical, visual, graphical, numerical or verbal) of logic or mathematical information; and estimate, analyze, or check solutions to problems to determine reasonableness, alternative solutions, or to determine optimal methods or results.

Diversity (D) courses emphasize one or more socially constructed groups (e.g. racial, ethnic, religious, gender, age, disability, sexual orientation) in the United States; Goals of “D” courses are to prepare students to critically analyze and understand through written work that provides them the opportunity to enhance their writing skills.

Humans (H) courses concentrate on the expression, analysis and interpretation of ideas and the aesthetics or values that have formed and inform individuals and societies; and emphasize diversity in the expression of human ideas and aesthetic or cultural values. Goals of “H” courses are to prepare students to critically analyze the relationships of aesthetics, ideas, or cultural values to historic and contemporary cultures; develop an understanding of how ideas, events, arts or traditions promote or inhibit the growth of individual and cultural development; and demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills.

Contemporary international culture (I) courses emphasize contemporary cultures outside the United States. Goals of “I” courses are to prepare students to critically analyze one or more contemporary cultures in the United States; understand how contemporary international cultures relate to complex, modern world systems; and demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills.

Scientific Investigation (L) courses include the equivalent of at least one semester credit hour of laboratory experience aimed at interpreting scientific hypotheses and emphasize scientific inquiry and experimental methodology. Goals of “L” courses are to prepare students to critically analyze scientific problems, formulate hypotheses, conduct appropriate experiments, and interpret results; solve problems using scientific inquiry and experimental methodology; communicate procedures, results and conclusions to others; and demonstrate...
their understanding through written work appropriate to the discipline that provides them the opportunity to enhance their writing skills.

Natural science (N) courses feature the systematic study of natural processes, and the mechanisms and consequences of human intervention in those processes; and place primary emphasis on the subject matter of one or more basic physical or biological sciences in a broadly integrative fashion. Goals of "N" courses are to enable students to understand the scientific inquiry process; critically analyze the physical world using the language and concepts of science; use the methodologies and models of science to select, define, solve, and evaluate problems in physical and biological sciences; understand evidence, interpretations, results, and solutions related to the physical and biological sciences; understand the consequences of human intervention in natural processes and mechanisms; and demonstrate their understanding through written work appropriate to the discipline that provides them the opportunity to enhance their writing skills.

Social and behavioral sciences (S) courses propose theoretical constructs to explain human behavior and society in social and/or physical environments; and are based on empirical observation of human behavior rather than the study of aesthetics, ideas or cultural values. Goals of "S" courses are to prepare students to critically analyze generalizations about society and explore theoretical structures; understand the role of empirical observation in the social and behavioral structures; and demonstrate their understanding through written work that provides them the opportunity to enhance their writing skills.

Accreditation

Oklahoma State University is accredited by the Higher Learning Commission (HLC) (A Commission of North Central Association of Colleges and Schools), and programs within the colleges are also accredited. (The HLC may be reached at 30 N. LaSalle Street, Suite 2400, Chicago, IL 60602, 1.800.621.7440, www.ncahiigherlearningcommission.org.)

In the College of Agriculture and Natural Resources, the forestry curriculum is accredited by the Society of American Foresters. The landscape architecture program (Bachelor of Landscape Architecture) is accredited by the American Society of Landscape Architects (ASLA). The landscape contracting program is accredited by the Professional Landcare Network (PLANET). In addition, the College’s professional education program in agricultural education is accredited by the Oklahoma State Department of Education and the Oklahoma State Department of Vocational-Technical Education. The Biosystems Engineering program is accredited by Engineering Accreditation Commission (EAC) of ABET as a component of associated engineering programs in the College of Engineering, Architecture and Technology.

In the College of Arts and Sciences, the chemistry program is certified by the American Chemical Society; the program in communication sciences and disorders is accredited by the American Speech-Language-Hearing Association; the School of Media and Strategic Communications, which offers programs in multimedia journalism, sports media, and strategic communication, is accredited by the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC); the Clinical Laboratory Sciences program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences; the music department is accredited by the National Association of Schools of Music; the program in clinical psychology is accredited by the American Psychological Association; and the theatre department is accredited by the National Association of Schools of Theatre.

In the College of Education, the aviation programs are accredited by the Aviation Accreditation Board International (AABI). The counseling psychology and school psychology programs are both accredited by the American Psychological Association. The school counseling and community counseling programs are accredited by the Coordinating Board for Accreditation of Counseling and Related Educational Programs (CACREP). The school psychology program is also accredited by the National Association of School Psychologists. The leisure studies program is accredited by the National Recreation and Park Association in partnership with the American Association for Leisure and Recreation, with accredited options in leisure service management and therapeutic recreation. Athletic training is accredited by The Commission on Accreditation of Athletic Training Education (CAATE). All professional education programs are accredited by the Council for the Accreditation of Educator Preparation (CAEP) formerly named the National Council for Accreditation of Teacher Education (NCATE). Technical and industrial education is accredited by the Oklahoma State Department of Career and Technical Education.

In the College of Engineering, Architecture and Technology, bachelor’s degree programs are accredited by nationally recognized engineering accreditation organizations. Programs in aerospace engineering, architectural engineering, biosystems engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering and management, and mechanical engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET. Programs in construction management technology, electrical engineering technology, fire protection and safety technology, and mechanical engineering technology are accredited by the Technology Accreditation Commission (TAC) of ABET, Inc. The architecture program is accredited by the National Architectural Accrediting Board (NAAB), Accreditation Director, National Architectural Accrediting Board, 1735 New York Ave. NW, Washington D.C. 20066, 202.783.2007.

Programs culminating in a baccalaureate degree in the College of Human Sciences are accredited by specialized accreditation organizations. The Council for Interior Design Accreditation (CIDA) has accredited the undergraduate interior design program. The pre-production and the production management curricula are accredited by the Child Development Laboratory/RISE (Sponsored by the Oklahoma Commission for the Accreditation of Teacher Education, NCATE). The Family and Consumer Sciences Education program has been accredited by the Oklahoma Commission for Teacher Preparation in cooperation with the National Council for Accreditation of Teacher Education (NCATE). The Marriage and Family Therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy. The Didactic Program in Dietetics (DPD) and the Dietetic Internship at OSU are both currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, 312.899.0040 ext. 5400.

The Spears School of Business is accredited by AACSB International - The Association to Advance Collegiate Schools of Business, which is the premier accrediting agency for bachelor’s, master’s and doctoral degree programs in business administration and accounting. AACSB International-The Association to Advance Collegiate Schools of Business represents the highest standard of achievement for business schools, worldwide. Institutions that earn accreditation confirm their commitment to quality and continuous improvement through a rigorous and comprehensive peer review process. All Spears programs are AACSB accredited with the exception of the M.S. in Economics and the PhD in Economics which do not come under the AACSB’s scope of review. The School of Accounting is evaluated separately, and is fully accredited by AACSB. There are only 181 schools worldwide that have attained this status for both business and accounting programs.

The Center for Veterinary Health Sciences is fully accredited by the American Veterinary Medical Association. The Oklahoma Animal Disease Diagnostic Laboratory is accredited by the American Association of Veterinary Laboratory Diagnosticians, and the Boren Veterinary Medical Teaching Hospital is accredited by the American Animal Hospital Association.

The national care programs of the Center for Veterinary Health Sciences, the College of Human Sciences, and the College of Engineering, Architecture and Technology are accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC). AAALAC International is a private, non-profit organization that accredits the quality of animal care and treatment in science through voluntary accreditation and assessment programs. AAALAC International accreditation shows that an institution is serious about setting, achieving and maintaining high standards for animal care and use, and is committed to its commitment to the highest standards. AAALAC International offers the only national accreditation for animal care and use programs, and it has become recognized around the world as a sign of quality science.

Programs at OSU’s branch campuses have also received accreditation from national agencies.

The College of Osteopathic Medicine at the Center for Health Sciences is accredited by the Commission on Osteopathic College Accreditation (COCA) of the American Osteopathic Association.

OSU-Oklahoma City is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. In addition, other programs are accredited or certified by the following institutions: National Association for the Education of Young Children, State Health Department for Emergency Medical Technicians, Council on Accreditation of Enforcement Education and Training, Accreditation Commission for Education in Nursing (ACEN), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, 404.975.5000, Oklahoma Board of Nursing, AmeriCorps National Civilian Service, American Veterinary Medical Technicians, National Commission for the Accreditation of Allied Health Education Programs, Commission on Accreditation for Dietetics Education, Joint Review Committee on Education in Diagnostic Medical Sonography, and Commission on Accreditation of Allied Health Education Programs (CAHÉP), 1361 Park Street, Clearwater, FL 33756, 727.210.2350.

OSU Institute of Technology, Okmulgee is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. In addition, programs in automotive service technology and automotive collision repair technology are nationally certified by the National Automotive Technicians Education Foundation, Inc. (NATEF). The Orthotics and Prosthetics program is accredited by the National Commission on Orthotics and Prosthetics Education (NCOPE). The National League for Nursing Accreditation Commission, 61 Broadway, 33rd Floor, New York, NY 10006, 212.363.5555, and the Oklahoma Board of Nursing both accredited the Nursing program. At the Bachelor of
Technology level, the Information Technologies program is ABET accredited by the Computing Accreditation Commission (CAC), and the Civil Engineering Technology program is ABET accredited by the Engineering Technology Accreditation Commission (ETAC).

Programs at OSU-Tulsa are fully accredited by the Higher Learning Commission, carrying the same accreditation as programs on the Stillwater campus. Refer to individual colleges for the specific agencies.

Refer to the appropriate college sections in this Catalog for further information on accreditation of specific programs.

Athletics Program Mission
Oklahoma State University is committed to providing regionally and nationally competitive athletics programs as an integral part of the overall educational mission of the University. Sponsored programs comply with the highest recognized standards of the institution and the athletic governing bodies. Intercollegiate athletics operate in harmony with the University’s stated mission and are committed to the intellectual, cultural, physical, and social development of the student-athletes as individuals. Opportunities for student-athletes are provided without discrimination. OSU is a member of the highly competitive Big 12 Conference.

Facilities
The OSU campus is one of exceptional beauty, with modified Georgian style architecture in many of the buildings. The main campus encompasses 840 acres and more than 200 permanent buildings. These facilities include the Edmon Low Library, ranked first in the state of Oklahoma and one of the largest libraries in the entire Southwest. Other facilities include newly renovated and nation’s largest Student Union, Old Central, the Henry Bellmon Research Center, Noble Research Center, Donald W. Reynolds Architecture Building, the Bartlett Center for the Visual Arts and the Sereetean Center for the Performing Arts.

In 2006, OSU launched its campus Master Plan 2025, calling for more than $650 million in projects to improve facilities in four areas: academics, student life, infrastructure, and athletics. The historic and far-reaching plan is transforming the OSU campus.

The North Classroom Building, a joint project between OSU and Northern Oklahoma College and funded in part by the state’s Higher Education Capital Bond Program, opened on the north side of the Stillwater campus in January 2009. The facility offers the latest in teaching technology and features an all-organic café.

The Multimodal Transportation Terminal and 1,100-space North Monroe Garage opened in the fall of 2008. The facilities provide a central point of contact for various modes of transportation serving the Stillwater and branch campuses, as well as the community and surrounding areas. Two-thirds of the funding for the facilities came from a Federal Transit Administration grant. A second parking garage on the southwest corner of campus opened in spring 2013.

The impressive Henry Bellmon Research Center opened in 2010. The $70 million building, which is the largest project in the state’s Capitol Bond Program, provides state-of-the-art laboratory space for a wide-range of disciplines and encourages collaborative research.

OSU opened several renovated buildings in 2009. Thanks to a gift from the Donald W. Reynolds Foundation, OSU doubled the size of its School of Architecture by building historic Old Central, built in 1894 and the oldest campus building, was renovated and remodeled to house the Honors College; the renovations have won numerous architectural awards. Murray Hall, which was built as a women’s dormitory in 1933, was renovated to house seven departments from the College of Arts and Sciences.

A $63 million facelift to OSU’s prestigious Student Union has greatly enhanced facilities and services to students. Campus Life is now prominently located on the second floor of the union and dining options have been enhanced and expanded. The Center for Services to Students area continues to house the Bursar, Registrar, Scholarship and Financial Aid, Undergraduate Admissions and the Learning and Student Success Opportunity Center in one convenient location to better serve students.

OSU has completed a renovation of the downtown Stillwater Postal Plaza into a gallery to showcase OSU art. Current building projects include a new library auxiliary that will house and free space in Edmon Low Library to better meet the study and online research needs of today’s students, and a new information technology building to centralize IT employees. Both projects are located on the northwest side of campus and should be completed by the end of 2014. Our projects scheduled to begin in 2014 are a new Veterinary Medicine Academic Center and a remodel of the Student Union’s Atherton Hotel. Work is under way on University Commons, a new residence hall to replace Kerr-Drummond in the area of the old track on Hall of Fame Avenue. The new facility will house 1,500 students in a hybrid-style residence hall. The project should be completed by the summer of 2015. Near-term projects in the Master Plan 2025 include a new building for the Spears School of Business, a major expansion of the College of Human Sciences building, and a new performing arts center.

The renovation of the west end of Boone Pickens Stadium expanded seating to 60,000 and created one of the premier collegiate football facilities in the country. The University has added several athletic projects north of Boone Pickens Stadium. OSU opened the Smith Training Center and a new outdoor track in 2013 and opened the Greenwood Tennis Facility in early 2014. The tennis center features six indoor and 12 outdoor courts and is one of the leading collegiate tennis facilities in the country. Athletics also is pursuing funds for a new baseball facility.

Prior to the launch of the Master Plan 2025, construction and renovation brought a number of enhancements to the campus. In 1995, Willard Hall was completely renovated and became home to the College of Education. Willard Hall was a 1939 vintage women’s dormitory. For its efforts in the Willard Hall project, OSU received an architectural award for the historic preservation of the building. The Robert M. Kerr Food and Agricultural Products Center, dedicated in 1994, underscores the essential role of the building Sciences and Natural Resources by allowing faculty and students the opportunity to investigate the ways and means of adding value to Oklahoma’s raw foodstuffs.

The University opened its $31 million Advanced Technology Research Center within the College of Engineering, Architecture and Technology in 1997. This multidisciplinary building enhances the University’s role of being a front runner in basic engineering and related research in a variety of fields that are relevant to Oklahoma, the United States and the world.

A renovation of the Classroom Building was completed in 1998. This building is the principal undergraduate classroom facility for the University. The Classroom Building remodeling effort gives students an updated facility with state-of-the-art teaching systems.

The first of four phases of apartments and suite-style accommodations for new student housing was completed in 2000. Phase II included family housing, apartments and suites and was completed in fall 2001. Phase III student housing opened in fall 2003, and the fourth phase of on-campus student housing was completed and opened in 2006. OSU expanded campus bus service for both the Stillwater community and the OSU-Stillwater campus to aid students, faculty and staff in their educationally related transportation needs. To reduce energy costs and emissions, OSU converted its entire fleet of campus busses to compressed natural gas in 2010.

In 2001, Gallagher-Iba Athletic Center was renovated to expand seating to approximately 13,000 for athletic, academic and entertainment activities. OSU’s basketball locker rooms were upgraded in 2010 for both men and women. In 2001, a state-of-the-art academic center in the College of Agriculture Sciences.

Fall 2004 saw the reopening of the Colvin Recreation Center after a major renovation and expansion. The facility was originally constructed in the late 1960’s, and was in need of modernization and more space. The project included a new outdoor pool, climbing wall, expanded workout and locker space, and indoor jogging track.

Improvements continue in the University's outdoor spaces as well, and a landscape architecture plan developed in 2010 will guide those efforts. Major east-west streets Hall of Fame and University have been greatly updated, and the university has completed a major overhaul to Monroe Street, which runs north-south through the heart of the campus. A series of landscaping projects near student residential facilities have occurred in recent years. In the summer of 2005, the Edmon Low Library plaza was restored by installing a new surface on the main upper plaza and the lower area. Completed in 2013, Legacy Walk provides a scenic east-west pedestrian thoroughfare in front of the library, connecting to Hester and Monroe streets.

OSU is emerging as a leader in network computing resources. The University has applied the student technology fee in concert with other University resources to create a second-to-none networking system on campus that includes new computer laboratories, high speed inter-laboratory connectivity, and a virtually seamless interface to the Internet.

The Lake Carl Blackwell area, located eight miles west of Stillwater, is also owned by OSU. The area includes approximately 21,655 acres, including the 3,000-acre Lake Carl Blackwell that provides the water supply for OSU. It is also used for research activities, in addition to being a popular regional recreational area.

Additional properties include 1,900 acres in farm land and facilities in Payne County, as well as 2,900 acres and various structures devoted to research stations around the state.
Institutional Diversity

Division of Institutional Diversity

Jason F. Kirksey, PhD—Associate Vice President for Institutional Diversity
Rosalyn V. Green, PhD—Director, Office of Equal Opportunity
Precious Elmore, PhD—Director, Office of Multicultural Affairs
Jovette Dew, PhD—Director, Diversity Academic Support and TRIO Department

Campus Address and Phone:
408 Whitehurst, Stillwater, OK 74078-1035 – 405.744.9154
Website: diversity.okstate.edu E-mail: diversity@okstate.edu

The Division of Institutional Diversity focuses on the development of a more inclusive community of learners and leaders while striving to address all of the complexities that emerge. We value all voices in our community. We will serve every member of the OSU family. Our goal is to maintain campus communities throughout the University system that are socially, culturally, and globally competent.

Our Mission

To develop and support efforts that help the Oklahoma State University System achieve and maintain environments where all members are actively broadening their perspectives about differences; actively seeking to know individuals; actively including all members of the community in every aspect of the organization; and where students achieve academic excellence.

Key Action Steps

• Provide seminars, workshops, courses, and other activities that afford individuals (students, staff, faculty and community members) with opportunities to broaden their perspectives regarding differences and notions of inclusion.
• Recruit, retain, and graduate undergraduate and graduate students who actively promote the importance of an inclusively diverse community of learners and the world.
• Provide internships and service learning opportunities for students to gain knowledge and understanding of an inclusive diverse community.
• Recruit and retain staff and faculty who actively promote the importance of an inclusively diverse community of learners and world.
• Promote and reward student academic excellence.
• Serve the surrounding communities in ways that actively promote the importance of an inclusively diverse community and world.

At Oklahoma State University, we place great value on the differences of our people. Diversity in action should empower individuals to think and act in ways that will embrace and promote a more inclusive world.

The Division of Institutional Diversity begins its sixth year with an expanded team dedicated to better serving your needs. Each of our units will help us promote and sustain a more diversely inclusive community of learners at Oklahoma State University.

Please visit our website at diversity.okstate.edu for updates as our work continues to support the mission of this great University.

Office of Equal Opportunity

Oklahoma State University is committed to creating an environment for all students and employees that is fair and responsible—an environment where all members of the OSU community are treated with dignity and respect and distinctions are made on the basis of ability and performance. This commitment is based on our dedication to educational justice and the promise of each individual, as well as adherence to federal and state civil rights laws and University policies and procedures. It is the policy of OSU to be an equal opportunity University in all phases of operations, toward the attainment of the University’s basic mission and goals.

OSU is committed to providing equal employment and educational opportunity on the basis of merit and in a manner which does not discriminate because of an individual's race, gender, national or ethnic origin, color, age, religion, disability, sexual orientation or veteran status. All students are provided equal educational opportunity in all phases of the academic program and in all phases of the student life programs. No known form of illegal discrimination and/or harassment will be condoned or tolerated. Procedures are in place that assures equal treatment and equal access to the facilities and educational benefits of the University for all the members of its community.

OSU also has a policy prohibiting sexual harassment of students, staff and faculty. The University subscribes to the principle of the dignity of all persons and their labors. In support of this principle, sexual harassment is condemned in the recruitment, appointment and advancement of employees and in the evaluation of students' academic performance. OSU is committed to promoting equal opportunity in employment and education for all persons within its constituency in an environment free from sexual harassment.

Please contact the Office of Equal Opportunity, 408 Whitehurst, at 405.744.9153 for information concerning unlawful discrimination and inquiries regarding OSU compliance with equal opportunity or affirmative action, or visit the Office of Equal Opportunity website at eeo.okstate.edu.

Title IX

Title IX of the Education Amendments and Oklahoma State University policy prohibit discrimination. The University prohibits services and benefits that are not provided by the University based upon gender. Gender discrimination is unequal or disadvantageous treatment of an individual or group of individuals based on gender. Sexual harassment is a form of illegal gender discrimination. Anyone (student, faculty or staff) who believes that discriminatory practices have been engaged in based upon gender may discuss their concerns and file informal or formal complaints of possible violations of Title IX, at 408 Whitehurst or online at eeo.okstate.edu.

For more information refer to the OSU Gender Discrimination/Sexual Harassment Policy & Title IX Grievance Procedure 1-0702 at www.okstate.edu/osu_per/policy_proced.htm.

Office of Multicultural Affairs

The Office of Multicultural Affairs (OMA) is a place for students of different cultures, backgrounds, and experiences to come together in an effort to learn more about each other and about themselves. OMA takes a holistic approach to empower Oklahoma State University students to think and act in ways that will embrace and promote a more inclusive world. We aim to assist students in achieving academic excellence, developing their personal and professional character, and engaging in the campus and greater community.

OMA achieves these goals by offering scholarships, leadership development programs, mentoring opportunities and cultural education programs. We are also home to several of Oklahoma State’s cultural affinity groups, including the African-American Student Association, Asian-American Student Association, Hispanic Students Association, Native American Student Association, Vietnamese Student Association, and house the office of Women’s and LGBT affairs. OMA is here to serve all students. By connecting students with opportunities and resources for academic, personal and professional development, we prepare students to live and thrive in a culturally diverse world.

For more information on OMA programs and services, visit our website at oma.okstate.edu, contact the Office of Multicultural Affairs at 240 Student Union or e-mail at oma@okstate.edu.

Diversity Academic Support

Diversity Academic Support (DAS) is a unit in the Division of Institutional Diversity with a mission to provide resources and opportunities for academic, social, and emotional growth. This unit is engaged in activities that are designed to help create a more inclusively diverse community of learners at OSU. DAS wants to work with all individuals interested in promoting this work. For more information, please contact DAS at 405.744.5335 or contact by e-mail at diversityacadsupport@okstate.edu.

ILP Program

The Inclusion Leadership Program (ILP) at OSU consists of a series of connected activities that will help OSU students and students from high schools in Oklahoma City, Tulsa, and Stillwater to (1) broaden perspectives about themselves and others; (2) develop inclusive leadership skills; (3) increase knowledge regarding global networking; and (4) clear a pathway to successful living within a global society.
The Inclusion Leadership Program is a year-long leadership program designed to equip OSU students with the skills and knowledge to become effective leaders in a more diversely inclusive society. Students in the ILP program will share their understandings of leadership with teams of OSU sophomores and students selected from high schools in Oklahoma City, Tulsa, and Stillwater High School. The OSU and high school students will also be mentored by business leaders. By becoming mentors to the high school students, the OSU students will be passing on what they are learning. They will be developing high school students to become leaders themselves. In essence, leaders will be developing leaders. For additional information on the ILP program, contact the coordinator at 405.744.4725.

RISE Program
The Retention Initiative for Student Excellence program (RISE) is designed to assist students in their transition from high school to Oklahoma State University. The program's primary focus is to address all of the academic issues that might challenge RISE students. The program is also attentive to the variety of social and financial challenges that RISE students often face. The RISE program provides students with mentors, scheduled study group sessions, one-on-one tutorial as needed, opportunities to serve in leadership roles, and a number of social and cultural activities. The objective is for all RISE students to end their first year of academic work at OSU with no less than a 3.0 GPA. The RISE program is designed for excellence. Our expectations are high and our commitment is deep. We believe that these two principles form a foundation on which RISE students will achieve excellence at Oklahoma State University. For additional information on the RISE program, contact the coordinator at 405.744.2920.

RISE Jumpstart Program
The Retention Initiative for Student Excellence (RISE) Jumpstart program is a five-week summer residential experience designed to afford incoming first-year student to Oklahoma State University opportunities to achieve a smooth transition to college life. Life skills seminars emphasizing social, emotional, physical health and wellness along with familiarity with the existing academic support networks that exist on campus will be intertwined throughout the program's schedule. For additional information on the RISE Jumpstart program, contact the coordinator at 405.744.2920.

Student Support Services Program
The Student Services Support Program at Oklahoma State University is funded through the U.S. Department of Education. The program is designed to provide support and motivation to low-income, first-generation, and/or students with disabilities from matriculation through graduation. The Student Support Services program provides the following services: academic advisement, financial aid advisement, mentoring, cultural programming, and service learning preparation. Students enrolled in the program may also be awarded financial assistance in the form of scholarships or stipends. For more information on this program, contact OSU-SSS at 405.744.5198.

Upward Bound
Upward Bound is a college preparatory program designed to provide academic skills and motivation for students who are interested in pursuing an educational program beyond high school. Students generally enter the program in the 9th or 10th grade and remain through graduation from high school and entry into college. During the summer, Upward Bound (UB) students live on the Oklahoma State University campus for six weeks and participate in a variety of academic, social, and cultural activities. During the regular school year, UB students are in contact with UB staff members and tutors through activities, counseling sessions and tutorials. For more information about the OSU Upward Bound Program, contact the Upward Bound Office at 405.744.5455.

Oklahoma Louis Stokes Alliance for Minority Participation
The Oklahoma Louis Stokes Alliance for Minority Participation (OK-LSAMP) program is sponsored by the National Science Foundation. The Oklahoma Alliance was formed under the leadership of Oklahoma State University and the Oklahoma State Regents for Higher Education. The program was established to address the critical under-supply of minority students at state higher education institutions receiving degrees in science, technology, engineering and mathematics (STEM). Phase IV of the program began in Fall 2009 and will continue for five years. The Oklahoma Alliance is comprised of eleven partner institutions with OSU serving as the lead institution. Alliance institutions include: The University of Oklahoma, Langston University, Cameron University, East Central University, University of Central Oklahoma, Northeastern State University, Northwestern Oklahoma State University, Southeastern Oklahoma State University, Southwestern Oklahoma State University and the University of Tulsa. For additional information visit www.ok-lsamp.okstate.edu, e-mail okamp@okstate.edu, call 405.744.6710 or 405.744.7520.
Freshman Admission Requirements

For purposes of admission, a freshman student is one who has earned no more than six hours of college-level credit after graduation from high school. (This excludes credits earned concurrently with high school enrollment and credit earned by examination.)

To be admitted in good standing a student must graduate from an accredited high school or have earned a General Education Diploma (GED) and meet both the performance and curricular requirements listed below. (Accredited high schools are those fully accredited by one of the six regional associations of schools and colleges or by the individual state department of education.)

Performance Requirements. To be admitted in good standing, a student must satisfy at least one of the following performance standards and all of the curricular requirements listed below.

1. Achieve a four-year high school unweighted GPA of 3.00 or higher (on an unweighted 4.00 grading scale; GPA is an unweighted average of all grades “A” equating to 4.00 and “D” equating to 1.00 taken 9th through 12th grades), and rank scholastically among the top one-third (33.3%) of their graduating class, or

2. Achieve a GPA of 3.00 or higher (on a 4.00 grading scale standard weighting (1.0) to The College Board’s Advanced Placement courses and the International Baccalaureate higher-level courses) on the required 15 core high school courses (see Curricular Requirements listed below) and attain either an ACT composite score of 22 or higher or a total SAT score of 1020 or higher, or

3. Attain an ACT composite score of 24 or higher or a total SAT score of 1090 or higher.

4. Achieve a GPA of 3.00 or higher (on a 4.00 grading scale standard weighting (1.0) to The College Board’s Advanced Placement courses and the International Baccalaureate higher-level courses) in the required 15 core high school courses OR attain either an ACT composite score of 22 or higher or a total SAT score of 1020 or higher and answers to the application questions.

SAT total score is the combination of Critical Reading and Math sections only.

Curricular Requirements. All students must complete the following curricular requirements for admission:

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (grammar, composition &amp; literature)</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>History &amp; Citizenship</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Science</td>
<td>3</td>
</tr>
<tr>
<td>Other (from any of the above or foreign language or computer science)</td>
<td>2</td>
</tr>
</tbody>
</table>

In addition to the above requirements, it is recommended that students also complete the following additional courses:

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine arts (music, art, or drama); Speech</td>
<td>additional 2</td>
</tr>
<tr>
<td>Lab science</td>
<td>additional 1</td>
</tr>
<tr>
<td>Mathematics</td>
<td>additional 1</td>
</tr>
</tbody>
</table>

Students who have earned any hours of college-level credit must also meet university retention standards to be admitted in good standing (see "Retention Standards" in Transfer Admissions).

Curricular Deficiencies and Remediation. Students must ‘place’ into college-level course work in the areas of English, math, reading, and science through appropriate placement testing. The appropriate ACT or SAT scores may be used for placement in science courses. The predicted grade index, which is a regression equation that uses items from students’ high school transcripts, may also be used to place students into English, reading or science courses. The OSU Math Placement exam is used for placement in math courses. Secondary testing for placement purposes is available through the ACT COMPASS exams. For additional information visit placement.okstate.edu or contact University Assessment and Testing at 405.744.5958.

Unit of Credit. The unit of credit at Oklahoma State University is the semester hour. Credit hours earned at colleges or universities on the quarter-hour system will be multiplied by two-thirds to produce the semester-hour equivalent (i.e., one quarter-hour equals two-thirds of a semester hour; or a 5 hour quarter course equals 3.34 hours in semester credit). All other credit-hour systems listed on other college transcripts will be researched and converted to semester-hour equivalents.

English Proficiency Requirement. All new applicants for undergraduate study for whom English is a second language are required to show proficiency by achieving the following minimum scores on either the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) exams. Scores over two years old by the beginning of the term students wish to enter are not acceptable unless they have been attending school in the U.S. since the test date

- 500 for a paper-based TOEFL or
- 61 for Internet-based TOEFL or
- 6.0 for an IELTS exam

When requesting ETS send official score reports to Oklahoma State University, please use the ETS institution code, 6546, for OSU and department code, 00.

In extraordinary and deserving cases, the President or the President’s designee may admit a student who fails to meet the above requirements. In these situations, the applicant must have demonstrated proficiency in the English language prior to admission. For further details, contact the Office of Undergraduate Admissions.

Special Freshman Admission Programs

Alternative Admission. Students whose high school achievement is below the standards specified in the performance requirements may be eligible for admission under the Alternative Admission Program. Space is limited and only those applicants showing the best promise of academic success, consistent with OSU’s enrollment goals and objectives, will be admitted. Priority will be given to those who apply early, but admissions decisions will not be determined until students submit an official high school transcript which reflects first semester senior grades.

Adult Admission. Adults 21 years of age or older or individuals on active military duty may be admitted after careful consideration is given to determine the probability of academic success of the student. It is the opinion of Oklahoma State University that these students will be successfully able to complete a program of study and receive a degree.
State University that factors such as maturity of the individual, job skills and experience will be in the best interest of the student, both intellectually and socially.

Home Study or Unaccredited High Schools. An individual who is a graduate of a private, parochial, or other non-public high school which is not accredited by a recognized accrediting agency is eligible for admission to the University if:
1. The student graduated from high school or has enrolled in a home study program, and
2. The student has attained an ACT composite score of 24 or higher, or a total SAT composite score of 1090 or higher, and
3. The student has satisfied the high school curricular requirements as certified by the school official or, if home study, the parent.

Correspondence Study Enrollment. Admission to the University is not required for enrollment in correspondence study courses. However, academic credit for these courses will not be applicable toward a degree until the student has been formally admitted to the University and has secured the approval of the appropriate academic officer for such credit.

Non-Degree Option. Students who wish to enroll in courses without intending to pursue a degree may be permitted to enroll in up to nine credit hours without satisfying admission requirements. If a student wishes to enroll in additional course work (over the nine hours allowed) he or she will be required to satisfy admission requirements. Enrollment for this program opens two weeks prior to classes beginning.

Concurrent Enrollment as a High School Student. A student enrolled in an accredited Oklahoma high school may, if he or she meets the requirements below, be admitted provisionally as a special student.
1. A student enrolled in an accredited Oklahoma high school may, if he or she meets the requirements below, be admitted provisionally as a special student.
2. The student has attained an ACT composite score of 24 or higher, or a total SAT composite score of 1090 or higher, and
3. The student has satisfied the high school curricular requirements as certified by the school official or, if home study, the parent.

Non-Degree Option. Students who wish to enroll in courses without intending to pursue a degree may be permitted to enroll in up to nine credit hours without satisfying admission requirements. If a student wishes to enroll in additional course work (over the nine hours allowed) he or she will be required to satisfy admission requirements. Enrollment for this program opens two weeks prior to classes beginning.

Concurrent Enrollment as a High School Student. A student enrolled in an accredited Oklahoma high school may, if he or she meets the requirements below, be admitted provisionally as a special student.

Military personnel and veterans who wish to establish credit for military training should submit to the Office of Undergraduate Admissions a copy of their DD214, (Armed Forces of the United States Report of Transfer or Discharge) or their DD295 (Application for the Evaluation of Educational Experiences During Military Service), and any certificates of completion for military schools attended. OSU also accepts credits earned through the DANTES Subject Standardized tests for active military personnel.

Academic departments on campus at OSU may offer advanced standing examinations in subject areas not offered by the CLEP or AP. Any currently enrolled student whose travel, employment, extensive readings or educational experience appear to have given the student proficiency in a subject that is offered at OSU, equivalent to the proficiency ordinarily expected of those students who take the subject in a regular class, may apply for an examination on the subject.

Information pertaining to these examinations may be obtained from the Office of Undergraduate Admissions website. See also the "University Academic Regulations" section of this Catalog.

Transfer Admission. For the purpose of determining admission, a transfer student is one who has earned a minimum of seven or more semester hours of college-level credit after graduation from high school. OSU does not use incomplete, GPA-neutral passing grades (ex: "P" or "S"), remedial/developmental, repeated/forgiven credit and activity courses when determining attempted hours for transfer admission.

Transfer Admission Requirements. A student who has earned between 7-23 hours of college credit must satisfy both freshman admission requirements and achieve minimum transfer GPA of 2.25 or higher in all college-level coursework attempted.

Students who have earned 24-59 hours of college credit must achieve a minimum transfer GPA of 2.25 or higher in all college-level coursework attempted.

Students who have earned 60 or more hours of college credit must achieve a minimum transfer GPA of 2.00 or higher in all college-level coursework attempted.
Transfer Credit Evaluation. Transfer credit evaluation in the Office of Undergraduate Admissions determines acceptable transfer credit on a course-by-course basis for college-level credit earned at institutions who are fully accredited by any of the six U.S. regional associations. The evaluation is based on course content, as described in the catalogs of those institutions and in consultation with appropriate academic units at OSU. Transcripts of record from institutions not accredited by a regional association may be accepted in transfer when the Office of Undergraduate Admissions has had an opportunity to validate the courses or programs. All transferred courses are recorded on the student’s academic record. No part of the previous collegiate record may be disregarded.

Courses completed at institutions located outside of the U.S. will be reviewed for transfer credit based on U.S. regional accreditation standards or postsecondary recognition in the country for which the institution is located. It is highly recommended that the program requirements and course syllabi be submitted for all courses completed overseas.

Readmission. A student who has attended OSU but was not enrolled during the immediate past semester (except the summer session) must file an updated Application for Admission/Scholarship and current application fee or waiver. A student who has enrolled in another college or university since last attending OSU must submit a transcript from each institution. Admission status will be determined after an evaluation of the previous work has occurred.

Additional Requirements for Admission or Continued Enrollment

Enrollment Information. After admission is granted, all students will receive detailed information on new student orientation. The fall semester enrollment process for freshmen occurs during the summer, while students who transferred have conducted on campus during the summer. Parents are welcome and are encouraged to participate in the enrollment process with the student. Students are required to submit a final high school transcript which includes confirmation of high school graduation to complete their admission record.

Immunization Requirements and Health History. All new students are required by Oklahoma law to provide evidence of having been immunized against measles, mumps, and rubella, (two shots), and against Hepatitis B, (three shot series). Read instructions carefully regarding the requirements to provide supporting documentation of these immunizations (copies of shot records). In addition, students are required to complete a brief medical history found on the Immunization and Health History form. This form is mailed to all new students or can be downloaded from the Internet at www.okstate.edu/UHS/. If this information is not received during the student’s first semester, a hold will be placed on future enrollment until the requirement is met.

Tuberculosis Testing. Any student who meets any of the criteria below is required to provide evidence of having been tested for Tuberculosis within the six months prior to coming to OSU, OR by the fourth week of classes:

- Hold a visa for study in the U.S.
- A U.S. born student who has resided overseas for more than eight continuous weeks.
- Have a medical condition that suppresses the immune system.
- Has been exposed to someone known to have TB disease.

To comply with this policy, the student must provide a copy of a TB skin test performed within the six months in the U.S., or if prior skin test as been positive, documentation of a negative chest x-ray performed in the U.S. All records must include the dates and results of the tests. Specific instructions are on the Immunization and Health History form. Prior vaccination with BCG does not exempt the student from this testing requirement.

Physical Examination. New students have a choice of 1.) submitting a physical examination performed in the prior six months; OR 2.) the student may complete the Health Risk Assessment provided by the Seretean Wellness Center. If students choose the physical examination option, their bursar accounts will be credited the $20 Health Risk Assessment fee.

In-State/Out-of-State Status of Enrolled Students

In-state/out-of-state status refers to whether you are an in-state Oklahoma resident or an out-of-state resident, and this classification determines your tuition cost.

Initial Classification. A student's initial In-State/Out-of-State classification is determined by the Office of Undergraduate Admissions when the Application for Admission/Scholarship is received.

Petition for In-State Status. A student classified as out-of-state for tuition purposes may petition for in-state status if the student believes he/she has been incorrectly classified as out-of-state. A Petition for In-State Status form must be submitted along with any additional supporting documentation to the Office of the Registrar. The student will be notified in writing of the decision following the final review.

Deadlines for submitting petitions to be considered for reclassification in a given semester are as follows:

- Fall - October 31
- Spring - March 31
- Summer - June 30

In-state status (and associated in-state tuition) is not granted on a retroactive basis. If you are receiving federal financial aid, please seek advice from the Office of Scholarships and Financial Aid on how a reclassification may affect your aid.

Regulations governing the in-state/out-of-state status of students are the responsibility of the Oklahoma State Regents for Higher Education and apply to all colleges and universities of the Oklahoma State System of Higher Education.

Section I. Purpose

Oklahoma statute 70 O.S., Supp. 2003, §3218.2 authorizes the State Regents to establish tuition and fees charged at public institutions to instate/out-of-state postsecondary students. This policy statement establishes definitions, principles, criteria, and guidelines to assist institutional officials in the classification of postsecondary students as instate/out-of-state students. Also, the policy statement should be helpful to prospective students in the determination of their in-state/out-of-state status prior to enrollment or for those out-of-state students seeking to be reclassified as in-state. Determination of in-state status for purposes of attendance at an institution in the state is based primarily on domicile as defined below. Since 1890, it has been public policy in Oklahoma to provide comprehensive, public higher education opportunities for citizens make to improve themselves, to upgrade the knowledge and skills of the Oklahoma work force, and to enhance the quality of life in Oklahoma generally. Therefore, residents of Oklahoma are afforded subsidies covering a portion of their educational costs at state colleges and universities. Out-of-state students are also provided educational subsidies, although at lower levels than those provided for permanent instate students. Out-of-state students provide Oklahoma institutions the ability to attract and graduate out-of-state students with academic abilities and talents who contribute to the economic development, vibrant and diverse of the state’s campuses. Additionally, Oklahoma institutions located near the state’s borders are especially sensitive to serving demographic areas where population, tax dollars, property ownership, etc., cross state borders frequently. Out-of-state tuition waivers allow institutions to serve the community and surrounding area to the benefit of the institution and its students without detriment to Oklahoma residents.

Section II. Definitions

1. Dependent Person - is one who is under the care, custody, and support of a parent or legal guardian.
2. Domicile - is a person’s true, fixed, permanent home or habitation. It is the place where he or she intends to remain and to which he or she expects to return. A person can have more than one residence, but only one domicile. Domicile has two components - residence and the intent to remain. When these two occur, there is domicile.
3. Documented foreign national - is a person who was born outside the jurisdiction of the United States (U.S.), is a citizen of a foreign country, and has not become a naturalized U.S. citizen under U.S. law, but has entered the U.S. by way of legal documentation such as a visa.
4. Full-Time Active Duty Military Personnel - for the purposes of this policy, are members of the armed forces who are on active duty for a period of more than 30 days (means active duty under a call or order that does not specify a period of 30 days or less). Personnel and their spouse and dependent children may be classified upon admission as in-state as long as they are continuously enrolled. “Armed Forces” means Army, Navy, Air Force, Marine Corps, Coast Guard. Such term does not include full-time National Guard duty.
5. Full-time Professional Practitioner or Worker - is a U.S. Citizen or lawful permanent Resident who has come to Oklahoma to practice a profession on a full-time basis, conduct a business full-time, or work on a full-time basis.
6. Full-Time Student - is an undergraduate student enrolled in a minimum of 12 credit hours per semester in an academic year or a minimum of six credit hours in a summer session. A full-time graduate student is one enrolled in a minimum of nine credit hours per semester or as required by the institution.
7. Independent person - is one who is responsible for his or her own care, custody and support.
8. In-state status - is a classification for a post-secondary student who has lived continuously in Oklahoma for at least 12 months not primarily as a post-secondary student, has established domicile in Oklahoma, and meets requirements associated with in-state status including sections IV, VII and VIII. Students classified upon admission as in-state are eligible to apply for state scholarship and financial aid programs.
9. Lawful permanent resident - is a naturalized alien who has been granted official immigration status as a lawful permanent resident of the U.S. This is evidenced by a lawful permanent resident card (also called a “green card”).
10. Out-of-state status - means an individual does not meet in-state requirements defined in this policy unless otherwise allowed by exceptions or provisions in policy.
11. Out-of-state tuition waiver - is the portion of tuition that is waived in excess of that paid by students classified as in-state.
12. Undocumented student - is a person who was born outside the jurisdiction of the U.S. as a citizen of a foreign country, and has not become a naturalized U.S. citizen under U.S. law and has entered the U.S. without documentation.
13. U.S. Citizen - is a person born in the United States, a U.S. Territory or former U.S. Territory or who has been granted citizenship by the U.S. Government.
Section III. Principles

As part of the admissions process, institutions are responsible for determining students’ in-state/out-of-state status consistent with this policy. Administrators interview students, review documentation and are in the best position to determine whether the student may be classified as in-state. Each institution must designate an appropriate administrative official (most often the Admissions Officer) as responsible for administration of this policy. The burden of proof to establish in-state status shall be upon the student. Since residence or domicile is a matter of intent, each case will be judged on its merits by the appropriate administrative official(s) consistent with this policy. Mere assertion by a student such as checking “In-State” on the application for admission is insufficient. The appropriate administrative official must review relevant documents, consider the policies, principles, procedures, and documentation used to determine in-state status. While no set criteria, documentation, or set of circumstances can be used for this purpose, the principles outlined below guide the process.

1. Attendance at a post-secondary educational institution, albeit a continuous and long-term experience, does not establish in-state status. Therefore, a student neither gains nor loses in-state status solely by such attendance.

2. Students attending an Oklahoma college or university may perform many objective acts, some of which are required by law (i.e., payment of taxes), and all of which are customarily done by some out-of-state students who do not reside in Oklahoma at the time of their registration. Acts such as registering to vote, obtaining a driver’s license, and voting are examples of such acts. Such acts and/or declarations alone are insufficient evidence of intent to remain in Oklahoma beyond the college experience.

3. An out-of-state student attending an Oklahoma college or university on more than a half-time basis is presumed to be in the state primarily for educational purposes.

4. An individual is not deemed to have acquired in-state status until he or she has been in the state for at least one year primarily as a permanent resident and not primarily as a student. Likewise, an individual classified as in-state shall not be reclassified as out-of-state until 12 months after leaving Oklahoma to live in another state.

5. Unless residency has been established in another state, an individual who resides in Oklahoma at the time of graduation from an Oklahoma high school and has resided in the state with a parent or legal guardian for two years prior to graduation from high school will be eligible for in-state status as allowed in Sections VI, VII, and VIII.

6. Each spouse in a family shall establish his or her own status on a separate basis. Exceptions include the following: when an out-of-state student individually marries a person in in-state status, the out-of-state individual may be considered in-state after documentation of the marriage and proof of domicile are satisfied without the 12 month domiciliary waiting period, and as provided in subsections VII and VIII.

7. Initial classification as out-of-state shall not prejudice the right of a person to be classified thereafter for following semesters or terms of enrollment as in-state provided that he or she establish domicile as defined in this policy. Institutions must establish procedures for students to appeal out-of-state classification.

8. Institutions may, but are not required, to waive out-of-state tuition (also known as Nonresident Tuition Waiver) in accordance with current State Regents’ Tuition and Fees Policy 4.18.5.B that allows any institution in the State System to waive a portion of the out-of-state tuition which amount shall not exceed the difference between out-of-state tuition and the amount paid by in-state students.

9. When a student transfers from one institution to another, the institution to which the student transfers is not bound by the in-state/out-of-state classification previously determined and may request documentation to determine the student’s in-state/out-of-state status.

Section IV. Dependent and Independent Persons

The legal status of an individual’s parent or that postsecondary student’s parents or the residence of the parent who has legal custody or the parent with whom the student habitually resides. If the student is under the care of those other than the parents, the legal residence is that of the student’s legal guardian. In-state/out-of-state classifications of postsecondary students with extraordinary living circumstances (e.g., divorced parents with joint custody when one parent or legal guardian lives out-of-state and/or claimed as a dependent on a tax return, etc.) may be considered on a case-by-case basis. Guidance for administrative officers charged with classifying students will be provided in the procedures manual. A dependent person may establish independent person status through circumstances including, marriage, formal court action, abandonment by parents, etc. To qualify, a dependent person must have completely separated from the parental or custodial relationship at that such separation is complete and permanent. Additionally, the individual must provide evidence that they are responsible for their housing and living expenses. Mere absence from the parental or guardian domicile is not proof of its complete abandonment. If an applicant provides documentation and satisfies evidence of independent status and domicile, they may be granted in-state status. If an independent person can provide evidence of coming to Oklahoma to establish domicile, the applicant may be granted instate status at the next enrollment occurring after expiration of 12 months following establishment of domicile in Oklahoma.

Section V. Documented Foreign Nationals

Documented foreign nationals may attend as postsecondary students if they have appropriate educational visas. These individuals are eligible for in-state classification if they become lawful permanent residents, have resided in Oklahoma for 12 months, and meet domicile requirements as set forth in this policy. Documented foreign nationals who are present in the U.S. with visas that allow full-time employment for extraordinary ability in sciences, arts, education, business, athletics, as an executive, manager, or specialist of a treaty nation company operating in the U.S. are eligible for out-of-state tuition waivers as long as they remain in full-time working status. Dependents of these documented foreign nationals who are lawfully present in Oklahoma based on the documented foreign national’s visa are also eligible for out-of-state tuition waivers.

Section VI. Undocumented Students

In accordance with Title 70, O.S., Section 3242 (2007) (also known as HB1804 of the First Regular Session of the 51st Legislature), an individual who cannot present to the institution valid documentation of United States nationality or an immigration status permitting study at a postsecondary institution but who:

1. Graduated from a public or private Oklahoma high school

2. Resided in this state with a parent or legal guardian while attending classes at an Oklahoma public or private high school in this state for at least two (2) years prior to graduation; and

3. Satisfies admission standards for the institution.

Individuals who meet the above requirements are eligible for enrollment and/or out-of-state tuition waivers if that individual:

A. Provides the institution with a copy of a true and correct application or petition filed with the United States Citizenship and Immigration Service (USCIS) to legalize the student’s immigration status;

B. Files an affidavit with the institution stating that the student will file an application to legalize his or her immigration status within the earliest opportunity the student is eligible to do so, but in no case later than:

   i. One (1) year after the date on which the student enrolls for study at the institution, or

   ii. If there is no formal process to permit children of parents without lawful immigration status to apply for lawful status without risk of deportation, one (1) year after the date the USCIS provides such a formal process, and

   iii. Satisfies admission standards for the institution.

C. If the student files an affidavit pursuant to subsection 2. above, presents to the institution a copy of a true and correct application or petition filed with the USCIS no later than:

   i. One (1) year after the date on which the student enrolls for study at the institution, or

   ii. If there is no formal process to permit children of parents without lawful immigration status to apply for lawful status without risk of deportation, one (1) year after the date the USCIS provides such a formal process, which copy shall be maintained in the institution’s records of that student.

D. Any student who completes and provides the institution with a copy of a true and correct application or petition filed with USCIS to legalize the student’s immigration status shall not be disqualified on the basis of the student’s immigration status from any scholarships or financial aid provided by this state as long as the student meets the following:

   i. Graduated from a public or private Oklahoma high school;

   ii. Resided in this state with a parent or legal guardian while attending classes at an Oklahoma public or private high school in this state for at least two (2) years prior to graduation; and

   iii. Satisfies admission standards for the institution.

Section VII. Military Personnel

The armed forces provide evidence of having full-time active duty in the armed forces stationed in Oklahoma or temporarily present through military orders shall be immediately classified upon admission as in-state status without regard to their parent and dependents. Further, when members of the armed services are transferred out-of-state, the member, their spouses and dependent children shall continue to be classified as in-state as long as they remain continuously enrolled. Former full-time active military personnel who resided in Oklahoma after their service may retain their in-state status without the 12 month requirement if they establish domicile as defined in this policy.

Section VIII. Full-time Professional Practitioner or Worker

A U.S. citizen or Lawful Permanent Resident who provide evidence of having come to Oklahoma to practice a profession on a full-time basis, conduct a business full-time, or work on a full-time basis shall be immediately classified as in-state status along with the individual’s spouse and dependents. Further, when members of the armed services are transferred out-of-state, the member, their spouses and dependents shall continue to be classified as in-state as long as they remain continuously enrolled. Former full-time active military personnel who returned to Oklahoma after their service may retain their in-state status without the 12 month domiciliary requirement so long as they continue in such full-time employment capacity or until such time that they independently establish in-state status as described in Section III of this policy. A full-time professional practitioner or worker who is temporarily assigned to another location but maintains domicile in Oklahoma shall be considered to have in-state status along with the practitioner’s spouse and dependent children.

2014-2015 University Catalog
International Undergraduate Admissions

Office of International Students and Scholars
Campus Address and Phone:
250 Student Union, Stillwater, OK 74078-7013
405.744.5459
Website: union.okstate.edu/iss/index.htm

International students are required to meet academic performance standards which are equivalent to those established for all domestic applicants; however, freshman students educated outside the United States are not required to participate in the ACT or SAT. Participation in such tests for students educated outside the U.S. is only necessary for students wishing to qualify for scholarship opportunities. (See “Undergraduate Admissions” for the academic performance standards).

Application Procedure
For purposes of admission, an international student is defined as “a student who is, or will be, in the United States on a non-immigrant student visa.” This specifically refers to the Student (F) and Exchange Visitor (J) visas. To apply for admission all international students must submit:

1. An application for Admission and a fee of U.S. $75.00 made payable to OSU.
2. An official or certified true copy of each academic record with a certified English translation. Students enrolled at U.S. institutions may have certified true copies of their foreign records sent by their current institution.
   a. Secondary school records (yearly mark sheets or transcripts).
   b. Records from each college of university attended (yearly mark sheets or transcripts).
   c. National examination results.
3. Applications for international students are processed on a “rolling basis” just as domestic applicants; however, students are encouraged to submit materials by the following dates to ensure adequate time for their VISA interview process:
   a. March 1 for Summer term
   b. May 15 for Fall term
   c. October 1 for Spring term
4. All new applicants for undergraduate study for whom English is a second language are required to present either a minimum paper-based score of 500, or a minimum Internet-based score of 61 on the Test of English as a Foreign Language (TOEFL), or a minimum score of 6.0 on the International English Language Testing System (IELTS), taken within the last two years.
5. Freshman applicants educated within the United States must provide their official ACT or SAT score reports to OSU.

Transfer Admission
For the purpose of determining admission, a transfer student is one who has earned seven or more semester hours of college-level credit.

In evaluating college-level credit for course work completed outside of the U.S., OSU requires that the institution where the credit was earned and the program of study be recognized as tertiary level through the standards set by the country where the institution is located. OSU evaluates semester credit hours and grades earned based on U.S. equivalency standards.

Immigration Issues. The U.S. Citizenship and Immigration Services (USCIS) require that international students file a statement with the University showing adequate financial support for their education. OSU has its own financial guarantee form that international students need to complete as a requirement to receive the I-20 or DS-2019. Oklahoma State University has limited financial assistance for international students.

Students should not plan to finance their education with employment at Oklahoma State University. Students who are accepted to OSU and maintain their immigration status while making appropriate progress toward their degrees may be eligible to apply for on-campus University employment for 20 hours per week. However, students should take into consideration that campus employment opportunities are limited. Students holding F-1 or J-1 visas are rarely permitted by USCIS to work outside the University, and can be deported from the United States if they are found to be in violation of this regulation.

Electronic registration of immigration records into the USCIS Student Exchange and Visitor Information System (SEVIS) is mandatory for all international students pursuing education within the United States. International students must update their records in SEVIS prior to any change in their immigration information. This includes dropping below full-time status, changing local address, transferring to another institution, changing majors, withdrawing from classes, etc.

The OSU Office of International Students and Scholars (ISS) is responsible for entering those records into SEVIS. However, it is the student’s responsibility to obtain and maintain the correct immigration status while in the U.S. Conditions that apply to F-1 and J-1 status are summarized on the I-20 or DS-2019 forms and explained in detail at the mandatory ISS International Student Orientation program. This orientation program occurs the week before classes begin each fall and spring semester. Students should make their travel plans accordingly.

The Office of International Students and Scholars, located in 001 Classroom Building, should be contacted with questions related to SEVIS or individual immigration status issues at su-iss@okstate.edu.

Mandatory Health Insurance for Non-immigrant Students
The Oklahoma State University Board of Regents requires that nonimmigrant students be covered by health insurance.

The OSU Student Insurance Policy is the recommended health insurance and will be billed to your student account automatically.

In the following cases a waiver from this policy may be granted:

1. The insurance premium will be waived for nonimmigrant students sponsored by the United States Government, a foreign government recognized by the United States of America, or certain international, government sponsored or non-governmental organizations. Such waivers will be based on the government or organization guaranteeing payment of all health care expenses including evacuation and repatriation.

2. The insurance premium will also be waived for students who provide documented evidence of health insurance coverage by an employer. Nonimmigrant students employed by OSU and eligible for both employer-provided insurance and international student health insurance may select between the two, as long as the insurance selected includes evacuation and repatriation coverage.

3. Students covered by a recognized private medical insurance plan with benefits equal to or better than those outlined below, may request a waiver from OSU’s international student health insurance requirement. Coverage must be in effect from the first day of fall classes for a 12 month period. An alternate medical insurance plan must meet or exceed the following minimum requirements:
   • Medical benefits of at least $50,000 per accident or illness
   • Evacuation benefits of at least $7,500
   • Deductible does not exceed $500 per accident or illness
   • Repatriation of remains benefit in the amount of $10,000

To use alternate insurance, students must complete and submit a waiver request no later than the tenth day of classes. Once the waiver has been approved, a refund credit will be posted to the student’s account. Please check your student account to confirm your waiver processing status. If your waiver has been denied, you will receive an e-mail with an explanation for the denial.

If you have an appointment as an OSU Graduate, Teaching or Research Assistant or Associate, OSU provides the student health insurance policy for you. You will not be required to submit a request for waiver.

Waivers are required to be submitted by the end of the tenth day of classes. Waiver forms can be found at: union.okstate.edu/iss/ProspectiveStudents/General.htm.
Degree Programs

The type of degree offered in each major is listed along with the options and the college(s) in which each may be earned. For details, see appropriate department narrative. Major and option codes are included to assist in completing University forms where major and option information is required.

### College Abbreviations:
- AG: College of Agricultural Sciences and Natural Resources
- AS: College of Arts and Sciences
- BU: Spears School of Business
- ED: College of Education
- EN: College of Engineering, Architecture and Technology
- HS: Human Sciences

### Degree Abbreviations:
- BA: Bachelor of Arts
- BAR: Bachelor of Architecture
- BEN: Bachelor of Engineering
- BFA: Bachelor of Fine Arts
- BLA: Bachelor of Landscape Architecture
- BM: Bachelor of Music
- BS: Bachelor of Science
- BSAE: Bachelor of Science in Aerospace Engineering
- BSAG: Bachelor of Science in Agricultural Sciences and Natural Resources
- BSBA: Bachelor of Science in Business Administration
- BSBE: Bachelor of Science in Biosystems Engineering
- BSCH: Bachelor of Science in Chemical Engineering
- BSCV: Bachelor of Science in Civil Engineering
- BSIE: Bachelor of Science in Electrical Engineering
- BSET: Bachelor of Science in Engineering Technology
- CHG: Center for Health Sciences Graduate Programs
- COM: Center for Health Sciences College of Osteopathic Medicine
- GR: Graduate College
- VM: Center for Veterinary Health Sciences

### Major / Option

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>Agricultural Communications Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU/AGCM</td>
<td>AGBU</td>
</tr>
<tr>
<td>Crop and Soil Science</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>FARM</td>
</tr>
<tr>
<td>Farm and Ranch Management</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>FIN</td>
</tr>
<tr>
<td>Finance</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>International</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>Management</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>Marketing</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>Pre-Law</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>AGBU</td>
</tr>
<tr>
<td>Pre-Veterinary Business Management</td>
<td>AG</td>
<td>BSAG</td>
<td>AGBU</td>
<td>PBVM</td>
</tr>
<tr>
<td>Agricultural Communications</td>
<td>AG</td>
<td>BSAG</td>
<td>AGCM</td>
<td>AGCM</td>
</tr>
<tr>
<td>Agribusiness Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>AGCM</td>
<td>AGCM/AGBU</td>
</tr>
<tr>
<td>Animal Science Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>AGCM</td>
<td>AGCM/ANSI</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>AG</td>
<td>BSAG</td>
<td>AGEC</td>
<td>AGEC/ACCT</td>
</tr>
<tr>
<td>Accounting Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>AGEC</td>
<td>AGEC/ACCT</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED</td>
</tr>
<tr>
<td>Agricultural Business and Economics</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED</td>
</tr>
<tr>
<td>Agricultural Communication</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED</td>
</tr>
<tr>
<td>Animal Agriculture</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED</td>
</tr>
<tr>
<td>Horticulture Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED/HORT</td>
<td>AGED/HORT</td>
</tr>
<tr>
<td>Horticultural Sciences</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED/HORT</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED/HORT</td>
</tr>
<tr>
<td>Teaching</td>
<td>AG</td>
<td>BSAG</td>
<td>AGED</td>
<td>AGED/HORT</td>
</tr>
<tr>
<td>Agricultural Leadership</td>
<td>AG</td>
<td>BSAG</td>
<td>AGLE</td>
<td>AGLE</td>
</tr>
<tr>
<td>Extension Education</td>
<td>AG</td>
<td>BSAG</td>
<td>AGLE</td>
<td>AGLE</td>
</tr>
<tr>
<td>General</td>
<td>AG</td>
<td>BSAG</td>
<td>AGLE</td>
<td>AGLE</td>
</tr>
<tr>
<td>International Studies</td>
<td>AG</td>
<td>BSAG</td>
<td>AGLE</td>
<td>AGLE</td>
</tr>
<tr>
<td>Animal Science</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI/AGCM</td>
<td>ANSI/AGCM</td>
</tr>
<tr>
<td>Agricultural Communications Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI/AGCM</td>
<td>ANSI/AGCM</td>
</tr>
<tr>
<td>Agricultural Education Double Major</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI/AGCM</td>
<td>ANSI/AGCM</td>
</tr>
<tr>
<td>Animal Biotechnology</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
<tr>
<td>Business</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
<tr>
<td>International</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
<tr>
<td>Livestock Merchandising</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
<tr>
<td>Pre-Veterinary Animal Science</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>ANSI</td>
</tr>
</tbody>
</table>

2014-2015 University Catalog
<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td>PROD RNCH</td>
</tr>
<tr>
<td>Production</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td></td>
</tr>
<tr>
<td>Ranch Operations</td>
<td>AG</td>
<td>BSAG</td>
<td>ANSI</td>
<td></td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>AG</td>
<td>BSAG</td>
<td>BIMB</td>
<td></td>
</tr>
<tr>
<td>Pre-Medical or Pre-Veterinary Science</td>
<td>AG</td>
<td>BSAG</td>
<td>BIMB</td>
<td>PMPV</td>
</tr>
<tr>
<td>Entomology</td>
<td>AG</td>
<td>BSAG</td>
<td>ENTO</td>
<td></td>
</tr>
<tr>
<td>Bioforensics</td>
<td>AG</td>
<td>BSAG</td>
<td>ENTO</td>
<td></td>
</tr>
<tr>
<td>Insect Biology and Ecology</td>
<td>AG</td>
<td>BSAG</td>
<td>ENTO</td>
<td></td>
</tr>
<tr>
<td>Pre-Veterinary and Pre-Medical Sciences</td>
<td>AG</td>
<td>BSAG</td>
<td>ENTO</td>
<td></td>
</tr>
<tr>
<td>Environmental Science</td>
<td>AG</td>
<td>BSAG</td>
<td>ENVR</td>
<td></td>
</tr>
<tr>
<td>Environmental Policy</td>
<td>AG</td>
<td>BSAG</td>
<td>ENVR</td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td>AG</td>
<td>BSAG</td>
<td>ENVR</td>
<td></td>
</tr>
<tr>
<td>Water Resources</td>
<td>AG</td>
<td>BSAG</td>
<td>ENVR</td>
<td></td>
</tr>
<tr>
<td>Food Science</td>
<td>AG</td>
<td>BSAG</td>
<td>FSCD</td>
<td>IND</td>
</tr>
<tr>
<td>Industry</td>
<td>AG</td>
<td>BSAG</td>
<td>FSCD</td>
<td>MTS</td>
</tr>
<tr>
<td>Meat Science</td>
<td>AG</td>
<td>BSAG</td>
<td>FSCD</td>
<td>SCI</td>
</tr>
<tr>
<td>Science</td>
<td>AG</td>
<td>BSAG</td>
<td>FSCD</td>
<td></td>
</tr>
<tr>
<td>Horticulture</td>
<td>AG</td>
<td>BSAG</td>
<td>HORT</td>
<td></td>
</tr>
<tr>
<td>Horticultural Business</td>
<td>AG</td>
<td>BSAG</td>
<td>HORT</td>
<td>HRTB</td>
</tr>
<tr>
<td>Horticultural Science</td>
<td>AG</td>
<td>BSAG</td>
<td>HORT</td>
<td>HRTS</td>
</tr>
<tr>
<td>Public Horticulture</td>
<td>AG</td>
<td>BSAG</td>
<td>HORT</td>
<td>PHTR</td>
</tr>
<tr>
<td>Turf Management</td>
<td>AG</td>
<td>BSAG</td>
<td>HORT</td>
<td>TURF</td>
</tr>
<tr>
<td>Landscape Architecture</td>
<td>AG</td>
<td>BSAG</td>
<td>LMA</td>
<td></td>
</tr>
<tr>
<td>Landscape Management</td>
<td>AG</td>
<td>BSAG</td>
<td>LM</td>
<td></td>
</tr>
<tr>
<td>Natural Resource Ecology and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Fire Ecology and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Fisheries and Aquatic Ecology</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Forest Ecology and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Natural History and Conservation</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Rangeland Ecology and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Wildlife Biology and Pre-Veterinary Science</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Wildlife Ecology and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>NREM</td>
<td></td>
</tr>
<tr>
<td>Agronomic Business</td>
<td>AG</td>
<td>BSAG</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Crop Production and Management</td>
<td>AG</td>
<td>BSAG</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Plant Biotechnology and Improvement</td>
<td>AG</td>
<td>BSAG</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>Soil and Water Resources</td>
<td>AG</td>
<td>BSAG</td>
<td>PASS</td>
<td></td>
</tr>
<tr>
<td>University Studies</td>
<td>AG</td>
<td>BUS</td>
<td>UNST</td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary Studies</td>
<td>AG</td>
<td>BUS</td>
<td>UNST</td>
<td>MLTI</td>
</tr>
</tbody>
</table>

**COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES**

**GRADUATE DEGREE PROGRAMS**

<table>
<thead>
<tr>
<th>Program</th>
<th>College</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Communications</td>
<td>AG</td>
<td>MS</td>
<td>AGCM</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>AG</td>
<td>MS/PhD</td>
<td>AGEC</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>AG</td>
<td>MS/PhD</td>
<td>AGED</td>
</tr>
<tr>
<td>Animal Science</td>
<td>AG</td>
<td>MS/PhD</td>
<td>ANSI</td>
</tr>
<tr>
<td>Biochemistry and Molecular Biology</td>
<td>AG</td>
<td>MS/PhD</td>
<td>BIMB</td>
</tr>
<tr>
<td>Crop Science</td>
<td>AG</td>
<td>PhD</td>
<td>CPSI</td>
</tr>
<tr>
<td>Entomology</td>
<td>AG</td>
<td>PhD</td>
<td>ENTO</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>AG</td>
<td>MS</td>
<td>ENPP</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td>AG</td>
<td>MS</td>
<td>ENPP</td>
</tr>
<tr>
<td>Food Science</td>
<td>AG</td>
<td>MS/PhD</td>
<td>FSCD</td>
</tr>
<tr>
<td>General Agriculture</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Agricultural Leadership</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Animal Science</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Entomology</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Horticulture</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>International Agriculture</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Natural Resource Ecology and Management</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Plant Science</td>
<td>AG</td>
<td>MAG</td>
<td>AG</td>
</tr>
<tr>
<td>Major / Option</td>
<td>College</td>
<td>Degree</td>
<td>Major Code</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td>Horticulture</td>
<td>AG</td>
<td>MS</td>
<td>HORT</td>
</tr>
<tr>
<td>International Agriculture</td>
<td>AG</td>
<td>MAG/MS</td>
<td>AGIN</td>
</tr>
<tr>
<td>Natural Resource Ecology and Management</td>
<td>AG</td>
<td>MS/PhD</td>
<td>NREM</td>
</tr>
<tr>
<td>Fisheries and Aquatic Ecology</td>
<td>AG</td>
<td>MS/PhD</td>
<td>NREM</td>
</tr>
<tr>
<td>Forest Resources</td>
<td>AG</td>
<td>MS/PhD</td>
<td>NREM</td>
</tr>
<tr>
<td>Rangeland Ecology and Management</td>
<td>AG</td>
<td>MS/PhD</td>
<td>NREM</td>
</tr>
<tr>
<td>Plant and Soil Sciences</td>
<td>AG</td>
<td>MS</td>
<td>PASS</td>
</tr>
<tr>
<td>Plant Pathology</td>
<td>AG</td>
<td>PhD</td>
<td>PLP</td>
</tr>
<tr>
<td>Soil Science</td>
<td>AG</td>
<td>PhD</td>
<td>SLSI</td>
</tr>
</tbody>
</table>

### College of Arts and Sciences

#### Undergraduate Degree Programs

<table>
<thead>
<tr>
<th>Major</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Studies</td>
<td>AS</td>
<td>BA</td>
<td>AMSD</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>AS</td>
<td>BA</td>
<td>ART</td>
<td>ARTH</td>
</tr>
<tr>
<td>Studio Art</td>
<td>AS</td>
<td>BA</td>
<td>ART</td>
<td>STDA</td>
</tr>
<tr>
<td>Graphic Design Studio</td>
<td>AS</td>
<td>BFA</td>
<td>ART</td>
<td>GRPH</td>
</tr>
<tr>
<td>Chemistry</td>
<td>AS</td>
<td>BS</td>
<td>BIOL</td>
<td></td>
</tr>
<tr>
<td>ACS Approved</td>
<td>AS</td>
<td>BS</td>
<td>CHEM</td>
<td>ACS</td>
</tr>
<tr>
<td>Departmental Degree</td>
<td>AS</td>
<td>BS</td>
<td>CHEM</td>
<td>DEPT</td>
</tr>
<tr>
<td>Secondary Teacher Certification</td>
<td>AS</td>
<td>BS</td>
<td>CHEM</td>
<td>STCH</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>AS</td>
<td>BS</td>
<td>CDIS</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>AS</td>
<td>BS</td>
<td>CS</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>AS</td>
<td>BA</td>
<td>ECON</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>AS</td>
<td>BA</td>
<td>ECON</td>
<td>GEN</td>
</tr>
<tr>
<td>International Economic Relations</td>
<td>AS</td>
<td>BA</td>
<td>ECON</td>
<td>IECR</td>
</tr>
<tr>
<td>English</td>
<td>AS</td>
<td>BA</td>
<td>ENGL</td>
<td></td>
</tr>
<tr>
<td>Creative Writing</td>
<td>AS</td>
<td>BA</td>
<td>ENGL</td>
<td>CRWR</td>
</tr>
<tr>
<td>Screen Studies</td>
<td>AS</td>
<td>BA</td>
<td>ENGL</td>
<td>SCST</td>
</tr>
<tr>
<td>Professional Writing</td>
<td>AS</td>
<td>BA</td>
<td>ENGL</td>
<td>PRWR</td>
</tr>
<tr>
<td>French</td>
<td>AS</td>
<td>BA</td>
<td>FREN</td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>AS</td>
<td>BA/BS</td>
<td>GEOG</td>
<td></td>
</tr>
<tr>
<td>Geology</td>
<td>AS</td>
<td>BS</td>
<td>GEOL</td>
<td></td>
</tr>
<tr>
<td>Secondary Teacher Certification</td>
<td>AS</td>
<td>BS</td>
<td>GEOL</td>
<td>STCH</td>
</tr>
<tr>
<td>German</td>
<td>AS</td>
<td>BA</td>
<td>GRMN</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>AS</td>
<td>BA</td>
<td>HIST</td>
<td></td>
</tr>
<tr>
<td>Liberal Studies</td>
<td>AS</td>
<td>BA/BS</td>
<td>LBST</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>AS</td>
<td>BA/BS</td>
<td>MATH</td>
<td></td>
</tr>
<tr>
<td>Actuarial and Financial Mathematics</td>
<td>AS</td>
<td>BS</td>
<td>MATH</td>
<td>ACFM</td>
</tr>
<tr>
<td>Secondary Teacher Certification</td>
<td>AS</td>
<td>BS</td>
<td>MATH</td>
<td>STCH</td>
</tr>
<tr>
<td>Microbiology/Cell and Molecular Biology</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td></td>
</tr>
<tr>
<td>Biomedical Science</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td>BMED</td>
</tr>
<tr>
<td>Clinical Laboratory Science</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td>CLSC</td>
</tr>
<tr>
<td>Microbial Ecology/Environmental</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td>MCEE</td>
</tr>
<tr>
<td>Microbial Pathogenesis</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td>MCGP</td>
</tr>
<tr>
<td>Molecular Genetics</td>
<td>AS</td>
<td>BS</td>
<td>MCMB</td>
<td>MLGN</td>
</tr>
<tr>
<td>Multimedia Journalism</td>
<td>AS</td>
<td>BA/BS</td>
<td>MMJ</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>AS</td>
<td>BA</td>
<td>MUSC</td>
<td></td>
</tr>
<tr>
<td>Elective Studies in Business</td>
<td>AS</td>
<td>BM</td>
<td>MUSC</td>
<td>ESBU</td>
</tr>
<tr>
<td>Performance</td>
<td>AS</td>
<td>BM</td>
<td>MUSC</td>
<td>PERF</td>
</tr>
<tr>
<td>Music Education</td>
<td>AS</td>
<td>BM</td>
<td>MSED</td>
<td>IVCT</td>
</tr>
<tr>
<td>Instrumental/Vocal Certification</td>
<td>AS</td>
<td>BA</td>
<td>PHIL</td>
<td></td>
</tr>
<tr>
<td>Major / Option</td>
<td>College</td>
<td>Degree</td>
<td>Major Code</td>
<td>Option Code</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Physics</td>
<td>AS</td>
<td>BS</td>
<td>PHYS</td>
<td></td>
</tr>
<tr>
<td>Applied Physics</td>
<td>AS</td>
<td>BS</td>
<td>PHYS</td>
<td></td>
</tr>
<tr>
<td>Secondary Teacher Certification</td>
<td>AS</td>
<td>BS</td>
<td>PHYS</td>
<td></td>
</tr>
<tr>
<td>Physiology</td>
<td>AS</td>
<td>BS</td>
<td>PHSL</td>
<td></td>
</tr>
<tr>
<td>Political Science</td>
<td>AS</td>
<td>BA/BS</td>
<td>POLS</td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>AS</td>
<td>BA/BS</td>
<td>PSYC</td>
<td></td>
</tr>
<tr>
<td>Russian Language and Literature</td>
<td>AS</td>
<td>BA</td>
<td>RUSS</td>
<td></td>
</tr>
<tr>
<td>Sociology</td>
<td>AS</td>
<td>BA/BS</td>
<td>SOC</td>
<td>ANTH</td>
</tr>
<tr>
<td>Anthropology</td>
<td>AS</td>
<td>BA/BS</td>
<td>SOC</td>
<td>APSO</td>
</tr>
<tr>
<td>Applied Sociology</td>
<td>AS</td>
<td>BA/BS</td>
<td>SOC</td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>AS</td>
<td>BA</td>
<td>SPAN</td>
<td></td>
</tr>
<tr>
<td>Sports Media</td>
<td>AS</td>
<td>BA/BS</td>
<td>SPM</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>AS</td>
<td>BS</td>
<td>STAT</td>
<td></td>
</tr>
<tr>
<td>Strategic Communication</td>
<td>AS</td>
<td>BA/BS</td>
<td>SC</td>
<td></td>
</tr>
<tr>
<td>Theatre</td>
<td>AS</td>
<td>BA</td>
<td>TH</td>
<td></td>
</tr>
<tr>
<td>Zoology</td>
<td>AS</td>
<td>BS</td>
<td>ZOOL</td>
<td></td>
</tr>
<tr>
<td>University Studies</td>
<td>AS</td>
<td>BUS</td>
<td>UNST</td>
<td>UNST</td>
</tr>
<tr>
<td>Multidisciplinary Studies</td>
<td>AS</td>
<td>BUS</td>
<td>UNST</td>
<td>MLTI</td>
</tr>
<tr>
<td>COLLEGE OF ARTS AND SCIENCES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRADUATE DEGREE PROGRAMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art History</td>
<td>AS</td>
<td>MA</td>
<td>ARTH</td>
<td></td>
</tr>
<tr>
<td>Botany</td>
<td>AS</td>
<td>MS</td>
<td>BOT</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>AS</td>
<td>MS/PhD</td>
<td>CHEM</td>
<td></td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>AS</td>
<td>MS</td>
<td>CDIS</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>AS</td>
<td>MS/PhD</td>
<td>CS</td>
<td></td>
</tr>
<tr>
<td>Creative Writing</td>
<td>AS</td>
<td>MFA</td>
<td>CRWR</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>AS</td>
<td>PhD</td>
<td>ENGL</td>
<td>TESL</td>
</tr>
<tr>
<td>Teaching English as a Second Language (TESL)</td>
<td>AS</td>
<td>MA</td>
<td>ENGL</td>
<td>PRWR</td>
</tr>
<tr>
<td>Professional Writing</td>
<td>AS</td>
<td>MA</td>
<td>ENGL</td>
<td></td>
</tr>
<tr>
<td>Fire and Emergency Management</td>
<td>AS</td>
<td>MS/PhD</td>
<td>FEMA</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geography</td>
<td>AS</td>
<td>MS/PhD</td>
<td>GEOG</td>
<td></td>
</tr>
<tr>
<td>Geology</td>
<td>AS</td>
<td>MS/PhD</td>
<td>GEOL</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>AS</td>
<td>PhD</td>
<td>HIST</td>
<td>PHIS</td>
</tr>
<tr>
<td>Public History</td>
<td>AS</td>
<td>MA</td>
<td>HIST</td>
<td></td>
</tr>
<tr>
<td>Mass Communication</td>
<td>AS</td>
<td>MS</td>
<td>MCSM</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>AS</td>
<td>MS/PhD</td>
<td>MATH</td>
<td>AMTH</td>
</tr>
<tr>
<td>Applied Mathematics</td>
<td>AS</td>
<td>MS</td>
<td>MATH</td>
<td></td>
</tr>
<tr>
<td>Microbiology/Cell and Molecular Biology</td>
<td>AS</td>
<td>MS/PhD</td>
<td>MCMB</td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td>AS</td>
<td>MM</td>
<td>MUSC</td>
<td>APMU</td>
</tr>
<tr>
<td>Applied Music</td>
<td>AS</td>
<td>MM</td>
<td>MUSC</td>
<td>COND</td>
</tr>
<tr>
<td>Conducting</td>
<td>AS</td>
<td>MA</td>
<td>PHIL</td>
<td></td>
</tr>
<tr>
<td>Philosophy</td>
<td>AS</td>
<td>MA</td>
<td>PHIL</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>AS</td>
<td>MS/PhD</td>
<td>PHYS</td>
<td></td>
</tr>
<tr>
<td>Medical Physics</td>
<td>AS</td>
<td>MS</td>
<td>PHYS</td>
<td>MEDP</td>
</tr>
<tr>
<td>Optics and Photonics</td>
<td>AS</td>
<td>MS</td>
<td>PHYS</td>
<td>OPHO</td>
</tr>
<tr>
<td>Political Science</td>
<td>AS</td>
<td>MA</td>
<td>POLS</td>
<td>PPAD</td>
</tr>
<tr>
<td>Public Policy and Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>AS</td>
<td>MS</td>
<td>PSYC</td>
<td></td>
</tr>
<tr>
<td>Clinical</td>
<td>AS</td>
<td>PhD</td>
<td>PSYC</td>
<td>CLIN</td>
</tr>
<tr>
<td>Experimental Psychology</td>
<td>AS</td>
<td>PhD</td>
<td>PSYC</td>
<td>EXPS</td>
</tr>
<tr>
<td>Sociology</td>
<td>AS</td>
<td>MS/PhD</td>
<td>SOC</td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>AS</td>
<td>MS/PhD</td>
<td>STAT</td>
<td></td>
</tr>
<tr>
<td>Theatre</td>
<td>AS</td>
<td>MA</td>
<td>TH</td>
<td></td>
</tr>
<tr>
<td>Zoology</td>
<td>AS</td>
<td>MS/PhD</td>
<td>ZOOL</td>
<td></td>
</tr>
<tr>
<td>Major / Option</td>
<td>College</td>
<td>Degree</td>
<td>Major Code</td>
<td>Option Code</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>COLLEGE OF EDUCATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UNDERGRADUATE DEGREE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerospace Administration and Operations</td>
<td>ED</td>
<td>BS</td>
<td>AADO</td>
<td>ARLG</td>
</tr>
<tr>
<td>Aerospace Logistics</td>
<td>ED</td>
<td>BS</td>
<td>AADO</td>
<td>ARSC</td>
</tr>
<tr>
<td>Aviation Management</td>
<td>ED</td>
<td>BS</td>
<td>AADO</td>
<td>AVMG</td>
</tr>
<tr>
<td>Professional Pilot</td>
<td>ED</td>
<td>BS</td>
<td>AADO</td>
<td>PRPL</td>
</tr>
<tr>
<td>Technical Services Management</td>
<td>ED</td>
<td>BS</td>
<td>AADO</td>
<td>TSM</td>
</tr>
<tr>
<td>Career and Technical Education</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>BIFT</td>
</tr>
<tr>
<td>Business and Information Technology Education</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>HOCE</td>
</tr>
<tr>
<td>Health Occupations Education</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>MKED</td>
</tr>
<tr>
<td>Marketing Education</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>MKED</td>
</tr>
<tr>
<td>Certification</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>CERT</td>
</tr>
<tr>
<td>Non-Certification</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>NON</td>
</tr>
<tr>
<td>Technology Education</td>
<td>ED</td>
<td>BS</td>
<td>CTED</td>
<td>TEEED</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>ED</td>
<td>BS</td>
<td>EDUC</td>
<td>NCRT</td>
</tr>
<tr>
<td>Non-Certification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Elementary Education</strong></td>
<td>ED</td>
<td>BS</td>
<td>ELEM</td>
<td></td>
</tr>
<tr>
<td>Health Education and Promotion</td>
<td>ED</td>
<td>BS</td>
<td>HEPR</td>
<td>CMHE</td>
</tr>
<tr>
<td>Community Health Education</td>
<td>ED</td>
<td>BS</td>
<td>HEPR</td>
<td>EAHLE</td>
</tr>
<tr>
<td>Exercise and Health</td>
<td>ED</td>
<td>BS</td>
<td>HEPR</td>
<td>EAHLE</td>
</tr>
<tr>
<td><strong>Physical Education</strong></td>
<td>ED</td>
<td>BS</td>
<td>PHED</td>
<td>TCHE</td>
</tr>
<tr>
<td>Teacher Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Recreation Management and Therapeutic Recreation</strong></td>
<td>ED</td>
<td>BS</td>
<td>RMTR</td>
<td>RM</td>
</tr>
<tr>
<td>Recreation Management</td>
<td>ED</td>
<td>BS</td>
<td>RMTR</td>
<td>TR</td>
</tr>
<tr>
<td>Therapeutic Recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Secondary Education</strong></td>
<td>ED</td>
<td>BS</td>
<td>SCED</td>
<td>ENGL</td>
</tr>
<tr>
<td>English</td>
<td>ED</td>
<td>BS</td>
<td>SCED</td>
<td>LANG</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>ED</td>
<td>BS</td>
<td>SCED</td>
<td>SSTD</td>
</tr>
<tr>
<td>Social Studies</td>
<td>ED</td>
<td>BS</td>
<td>SCED</td>
<td>SSTD</td>
</tr>
<tr>
<td><strong>University Studies</strong></td>
<td>ED</td>
<td>BUS</td>
<td>UNST</td>
<td>MLTI</td>
</tr>
<tr>
<td>Multidisciplinary Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COLLEGE OF EDUCATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GRADUATE DEGREE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Educational Studies</td>
<td>ED</td>
<td>EdD</td>
<td>AEST</td>
<td>AED</td>
</tr>
<tr>
<td>Aviation and Space Education</td>
<td>ED</td>
<td>EdD</td>
<td>AEST</td>
<td>CINT</td>
</tr>
<tr>
<td>College Interdisciplinary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athletic Training</td>
<td>ED</td>
<td>MAT</td>
<td>ATRN</td>
<td></td>
</tr>
<tr>
<td>Aviation and Space</td>
<td>ED</td>
<td>MS</td>
<td>AVSP</td>
<td>AVSE</td>
</tr>
<tr>
<td><strong>Counseling</strong></td>
<td>ED</td>
<td>MS</td>
<td>COUN</td>
<td>CMCS</td>
</tr>
<tr>
<td>Community Counseling</td>
<td>ED</td>
<td>MS</td>
<td>COUN</td>
<td>SCHC</td>
</tr>
<tr>
<td>School Counseling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>ED</td>
<td>EdS</td>
<td>EDUC</td>
<td>SCHP</td>
</tr>
<tr>
<td>School Psychology</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>CRST</td>
</tr>
<tr>
<td>Curriculum Studies</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>EDCM</td>
</tr>
<tr>
<td>Educational Technology</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>SFED</td>
</tr>
<tr>
<td>Occupational Education Studies</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>PRED</td>
</tr>
<tr>
<td>Professional Education Studies</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>OCED</td>
</tr>
<tr>
<td>Social Foundations of Education</td>
<td>ED</td>
<td>PhD</td>
<td>EDUC</td>
<td>SFED</td>
</tr>
<tr>
<td><strong>Educational Leadership and Policy Studies</strong></td>
<td>ED</td>
<td>PhD</td>
<td>ELP S</td>
<td>EADM</td>
</tr>
<tr>
<td>Educational Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Educational Leadership Studies</strong></td>
<td>ED</td>
<td>MS</td>
<td>ELS</td>
<td>CSDV</td>
</tr>
<tr>
<td>College Student Development</td>
<td>ED</td>
<td>MS</td>
<td>ELS</td>
<td>HIED</td>
</tr>
<tr>
<td>Higher Education</td>
<td>ED</td>
<td>MS</td>
<td>ELS</td>
<td>SCAD</td>
</tr>
<tr>
<td>School Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major / Option</td>
<td>College</td>
<td>Degree</td>
<td>Major Code</td>
<td>Option Code</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Educational Psychology</strong></td>
<td>ED</td>
<td>MS/PhD</td>
<td>EPSY</td>
<td>EPSY</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>ED</td>
<td>MS</td>
<td>EPSY</td>
<td>EDRE</td>
</tr>
<tr>
<td>Educational Research and Evaluation</td>
<td>ED</td>
<td>MS</td>
<td>EPSY</td>
<td>SCPM</td>
</tr>
<tr>
<td>School Psychometrics</td>
<td>ED</td>
<td>PhD</td>
<td>EPSY</td>
<td>CPSY</td>
</tr>
<tr>
<td>Counseling Psychology</td>
<td>ED</td>
<td>PhD</td>
<td>EPSY</td>
<td>REVL</td>
</tr>
<tr>
<td>Research and Evaluation</td>
<td>ED</td>
<td>PhD</td>
<td>EPSY</td>
<td>SCHP</td>
</tr>
<tr>
<td><strong>Educational Technology</strong></td>
<td>ED</td>
<td>MS</td>
<td>EDTC</td>
<td>EDTC</td>
</tr>
<tr>
<td>School Library Media</td>
<td>ED</td>
<td>MS</td>
<td>EDTC</td>
<td>SCLM</td>
</tr>
<tr>
<td><strong>Health and Human Performance</strong></td>
<td>ED</td>
<td>MS</td>
<td>HHP</td>
<td>AEXS</td>
</tr>
<tr>
<td>Applied Exercise Science</td>
<td>ED</td>
<td>MS</td>
<td>HHP</td>
<td>HHP</td>
</tr>
<tr>
<td>Athletic Training</td>
<td>ED</td>
<td>MS</td>
<td>HHP</td>
<td>PE</td>
</tr>
<tr>
<td>Health Promotions</td>
<td>ED</td>
<td>MS</td>
<td>HHP</td>
<td>HHP</td>
</tr>
<tr>
<td>Physical Education</td>
<td>ED</td>
<td>MS</td>
<td>PE</td>
<td></td>
</tr>
<tr>
<td><strong>Health, Leisure and Human Performance</strong></td>
<td>ED</td>
<td>PhD</td>
<td>HLHP</td>
<td>HLHP</td>
</tr>
<tr>
<td>Health and Human Performance</td>
<td>ED</td>
<td>PhD</td>
<td>HLHP</td>
<td>LEIS</td>
</tr>
<tr>
<td>Leisure Studies</td>
<td>ED</td>
<td>EdD</td>
<td>HIED</td>
<td></td>
</tr>
<tr>
<td><strong>Higher Education</strong></td>
<td>ED</td>
<td>EdD</td>
<td>SA</td>
<td></td>
</tr>
<tr>
<td><strong>Teaching, Learning and Leadership</strong></td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>CLS</td>
</tr>
<tr>
<td>Curriculum and Leadership Studies</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>EMSK</td>
</tr>
<tr>
<td>Elem/Middle/Secondary Ed/K-12 Ed</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>MMSE</td>
</tr>
<tr>
<td>Mathematics/Science Education</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>OCED</td>
</tr>
<tr>
<td>Occupational Educational Studies</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>REAL</td>
</tr>
<tr>
<td>Reading and Literacy</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>SCNT</td>
</tr>
<tr>
<td>Secondary Education for Teachers Non-Traditionally</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td>SPED</td>
</tr>
<tr>
<td>Special Education</td>
<td>ED</td>
<td>MS</td>
<td>TLL</td>
<td></td>
</tr>
</tbody>
</table>

**COLLEGE OF ENGINEERING, ARCHITECTURE AND TECHNOLOGY**

**UNDERGRADUATE DEGREE PROGRAMS**

| Aerospace Engineering                             | EN      | BSAE   | AERS      |
| Architectural Engineering                         | EN      | BEN    | ARCE      | STR        |
| Architecture                                      | EN      | BAR    | ARCH      |
| **Bio-Systems Engineering**                       | EN      | BSBE   | BAE       | BIOM       |
| Biomedical/Immunological                          | EN      | BSBE   | BAE       | BFPF       |
| Bioprocessing and Food Processing                 | EN      | BSBE   | BAE       | ENTR       |
| Environmental and Natural Resources               | EN      | BSCH   | CHEN      | BMBC       |
| **Chemical Engineering**                          | EN      | BSCH   | CHEN      | ENVR       |
| Biomedical/Biochemical                            | EN      | BSCH   | CHEN      | PMED       |
| Environmental                                    | EN      | BSCV   | CIVE      | ENVR       |
| Pre-Medical                                       | EN      | BSCV   | CIVE      | ENVR       |
| **Civil Engineering**                             | EN      | BSCP   | CPE       |
| Environmental                                    | EN      | BSCP   | CPE       |
| **Construction Management Technology**            | EN      | BSET   | CMT       | BLDG       |
| Building                                          | EN      | BSET   | CMT       | HZY        |
| Heavy                                            | EN      | BSEE   | ELEN      |
| **Electrical Engineering**                        | EN      | BSET   | EE          | COM         |
| Computer                                          | EN      | BSET   | EE          | COMP       |
| **Fire Protection and Safety Engineering Technology** | EN      | BSET   | FPSE      |            |
| **Industrial Engineering and Management**         | EN      | BSIE   | IEM       |
| **Mechanical Engineering**                        | EN      | BSME   | MEEN      | PMED       |
| Pre-Medical                                       | EN      | BSME   | MEEN      | PMED       |
| **Mechanical Engineering Technology**             | EN      | BSME   | MEEN      | PMED       |
| University Studies                                | EN      | BUS    | UNST      | MLTI       |
| Multidisciplinary Studies                         | EN      | BUS    | UNST      | MLTI       |
### College of Engineering, Architecture and Technology

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosystems Engineering</td>
<td>EN</td>
<td>MS/PhD</td>
<td>BAE</td>
<td></td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>EN</td>
<td>MS/PhD</td>
<td>CHEN</td>
<td></td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>EN</td>
<td>MS/PhD</td>
<td>CIVE</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>EN</td>
<td>MS/PhD</td>
<td>ELEN</td>
<td>OPHO</td>
</tr>
<tr>
<td>Engineering and Technology Management</td>
<td>EN</td>
<td>MS</td>
<td>ETM</td>
<td></td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>EN</td>
<td>MS</td>
<td>EVEN</td>
<td></td>
</tr>
<tr>
<td>Industrial Engineering and Management</td>
<td>EN</td>
<td>MS/PhD</td>
<td>IEM</td>
<td></td>
</tr>
<tr>
<td>Mechanical and Aerospace Engineering</td>
<td>EN</td>
<td>MS/PhD</td>
<td>MAEN</td>
<td></td>
</tr>
<tr>
<td>Unmanned Aerial Systems</td>
<td>EN</td>
<td>MS/PhD</td>
<td>MAEN</td>
<td>UMAS</td>
</tr>
</tbody>
</table>

### College of Human Sciences

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design, Housing and Merchandising</td>
<td>HS</td>
<td>BHS</td>
<td>DHM</td>
<td>ADP</td>
</tr>
<tr>
<td>Apparel Design and Production</td>
<td>HS</td>
<td>BHS</td>
<td>DHM</td>
<td>ID</td>
</tr>
<tr>
<td>Interior Design</td>
<td>HS</td>
<td>BHS</td>
<td>DHM</td>
<td>MERC</td>
</tr>
<tr>
<td>Merchandising</td>
<td>HS</td>
<td>BHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel &amp; Restaurant Administration</td>
<td>HS</td>
<td>BHS</td>
<td>HRAD</td>
<td></td>
</tr>
<tr>
<td>Human Development and Family Science</td>
<td>HS</td>
<td>BHS</td>
<td>HDFS</td>
<td>CHFS</td>
</tr>
<tr>
<td>Child and Family Services</td>
<td>HS</td>
<td>BHS</td>
<td>HDFS</td>
<td>ECE</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>HS</td>
<td>BHS</td>
<td>HDFS</td>
<td>FACS</td>
</tr>
<tr>
<td>Family and Consumer Sciences Education</td>
<td>HS</td>
<td>BHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td>HS</td>
<td>BHS</td>
<td>NSCI</td>
<td>ALHT</td>
</tr>
<tr>
<td>Allied Health</td>
<td>HS</td>
<td>BHS</td>
<td>NSCI</td>
<td>CONU</td>
</tr>
<tr>
<td>Community Nutrition</td>
<td>HS</td>
<td>BHS</td>
<td>NSCI</td>
<td>DIET</td>
</tr>
<tr>
<td>Dietetics</td>
<td>HS</td>
<td>BHS</td>
<td>NSCI</td>
<td>HNPS</td>
</tr>
<tr>
<td>Human Nutrition/Pre-Medical Sciences</td>
<td>HS</td>
<td>BHS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University Studies</td>
<td>HS</td>
<td>BUS</td>
<td>UNST</td>
<td>MLTI</td>
</tr>
<tr>
<td>Multidisciplinary Studies</td>
<td>HS</td>
<td>BUS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### College of Human Sciences

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design, Housing and Merchandising</td>
<td>HS</td>
<td>MS</td>
<td>DHM</td>
<td>ADP</td>
</tr>
<tr>
<td>Apparel Design and Production</td>
<td>HS</td>
<td>MS</td>
<td>DHM</td>
<td>ID</td>
</tr>
<tr>
<td>Interior Design</td>
<td>HS</td>
<td>MS</td>
<td>DHM</td>
<td>MERC</td>
</tr>
<tr>
<td>Merchandising</td>
<td>HS</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitality Administration</td>
<td>HS</td>
<td>MS</td>
<td>HSPA</td>
<td></td>
</tr>
<tr>
<td>Human Development and Family Science</td>
<td>HS</td>
<td>MS</td>
<td>HDFS</td>
<td>CHFS</td>
</tr>
<tr>
<td>Child and Family Services</td>
<td>HS</td>
<td>MS</td>
<td>HDFS</td>
<td>DVFS</td>
</tr>
<tr>
<td>Developmental and Family Science</td>
<td>HS</td>
<td>MS</td>
<td>HDFS</td>
<td>ECE</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>HS</td>
<td>MS</td>
<td>HDFS</td>
<td>GERO</td>
</tr>
<tr>
<td>Gerontology (on-campus program)</td>
<td>HS</td>
<td>MS</td>
<td>HDFS</td>
<td>MPTH</td>
</tr>
<tr>
<td>Marriage and Family Therapy</td>
<td>HS</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Sciences</td>
<td>HS</td>
<td>MS</td>
<td>HS</td>
<td>FFP</td>
</tr>
<tr>
<td>Family Financial Planning</td>
<td>HS</td>
<td>PhD</td>
<td>HS</td>
<td>DHM</td>
</tr>
<tr>
<td>Design, Housing and Merchandising</td>
<td>HS</td>
<td>PhD</td>
<td>HS</td>
<td>HSPA</td>
</tr>
<tr>
<td>Hospitality Administration</td>
<td>HS</td>
<td>PhD</td>
<td>HS</td>
<td>HSPA</td>
</tr>
<tr>
<td>Human Development and Family Science</td>
<td>HS</td>
<td>PhD</td>
<td>HS</td>
<td>HDFS</td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td>HS</td>
<td>PhD</td>
<td>HS</td>
<td>NSCI</td>
</tr>
<tr>
<td>Dietetics</td>
<td>HS</td>
<td>MS</td>
<td>NSCI</td>
<td>DIET</td>
</tr>
<tr>
<td>Nutrition</td>
<td>HS</td>
<td>MS</td>
<td>NSCI</td>
<td>NUTR</td>
</tr>
<tr>
<td>Major / Option</td>
<td>College</td>
<td>Degree</td>
<td>Major Code</td>
<td>Option Code</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>SPERNS SCHOOL OF BUSINESS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>UNDERGRADUATE DEGREE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>BU</td>
<td>BSBA</td>
<td>ACCT</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>BU</td>
<td>BSBA</td>
<td>ECON</td>
<td>BEQS</td>
</tr>
<tr>
<td>Business Economics and Quantitative</td>
<td>BU</td>
<td>BSBA</td>
<td>ECON</td>
<td>PLAW</td>
</tr>
<tr>
<td>Studies</td>
<td>BU</td>
<td>BSBA</td>
<td>ECON</td>
<td></td>
</tr>
<tr>
<td>Pre-Law</td>
<td>BU</td>
<td>BSBA</td>
<td>ECON</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>BU</td>
<td>BSBA</td>
<td>EEE</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>BU</td>
<td>BSBA</td>
<td>FIN</td>
<td>CBM</td>
</tr>
<tr>
<td>Commercial Bank Management</td>
<td>BU</td>
<td>BSBA</td>
<td>FIN</td>
<td></td>
</tr>
<tr>
<td><strong>General Business</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Law</td>
<td>BU</td>
<td>BSBA</td>
<td>GNB</td>
<td>PLAW</td>
</tr>
<tr>
<td>International Business</td>
<td>BU</td>
<td>BSBA</td>
<td>INBU</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>BU</td>
<td>BSBA</td>
<td>MGMT</td>
<td>BUSS</td>
</tr>
<tr>
<td>Business Sustainability</td>
<td>BU</td>
<td>BSBA</td>
<td>MGMT</td>
<td>HRM</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>BU</td>
<td>BSBA</td>
<td>MGMT</td>
<td></td>
</tr>
<tr>
<td>Sports Management</td>
<td>BU</td>
<td>BSBA</td>
<td>MGMT</td>
<td>SPMG</td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>BU</td>
<td>BSBA</td>
<td>MIS</td>
<td>IA</td>
</tr>
<tr>
<td>Information Assurance</td>
<td>BU</td>
<td>BSBA</td>
<td>MIS</td>
<td></td>
</tr>
<tr>
<td>Management Science and Computer</td>
<td>BU</td>
<td>BSBA</td>
<td>MIS</td>
<td>RESC</td>
</tr>
<tr>
<td>Systems</td>
<td>BU</td>
<td>BSBA</td>
<td>MIS</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>BU</td>
<td>BSBA</td>
<td>MKTG</td>
<td></td>
</tr>
<tr>
<td>University Studies</td>
<td>BU</td>
<td>BS</td>
<td>UNST</td>
<td>MLTI</td>
</tr>
<tr>
<td>Multidisciplinary Studies</td>
<td>BU</td>
<td>BS</td>
<td>UNST</td>
<td></td>
</tr>
<tr>
<td><strong>SPEARS SCHOOL OF BUSINESS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GRADUATE DEGREE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>BU</td>
<td>MS</td>
<td>ACCT</td>
<td></td>
</tr>
<tr>
<td>Business Administration</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>ACCT</td>
</tr>
<tr>
<td>Accounting</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>BSIN</td>
</tr>
<tr>
<td>Business Intelligence</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>ECON</td>
</tr>
<tr>
<td>Economics</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>EEE</td>
</tr>
<tr>
<td>Information Assurance</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td></td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>MIS</td>
</tr>
<tr>
<td>Marketing Analytics</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>MKTA</td>
</tr>
<tr>
<td>Professional MBA</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>PMBA</td>
</tr>
<tr>
<td>Risk Management</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>RSKM</td>
</tr>
<tr>
<td>Telecommunications Management</td>
<td>BU</td>
<td>MBA</td>
<td>BADM</td>
<td>TCMG</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>EEE</td>
</tr>
<tr>
<td>Executive Research</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>EXRS</td>
</tr>
<tr>
<td>Finance</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>FIN</td>
</tr>
<tr>
<td>Management</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>MGMT</td>
</tr>
<tr>
<td>Management Science and Information</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>MSIS</td>
</tr>
<tr>
<td>Systems</td>
<td>BU</td>
<td>PhD</td>
<td>BADM</td>
<td>MKTG</td>
</tr>
<tr>
<td>Economics</td>
<td>BU</td>
<td>MS/PhD</td>
<td>ECON</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>BU</td>
<td>MS</td>
<td>EEE</td>
<td></td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>BU</td>
<td>MS</td>
<td>MIS</td>
<td>MIS</td>
</tr>
<tr>
<td>Accounting Information Systems</td>
<td>BU</td>
<td>MS</td>
<td>MIS</td>
<td>AIS</td>
</tr>
<tr>
<td>Digital Business Systems</td>
<td>BU</td>
<td>MS</td>
<td>MIS</td>
<td>DBS</td>
</tr>
<tr>
<td>Knowledge Management Systems</td>
<td>BU</td>
<td>MS</td>
<td>MIS</td>
<td>KNMS</td>
</tr>
<tr>
<td>Information Assurance and Security</td>
<td>BU</td>
<td>MS</td>
<td>MIS</td>
<td>IAS</td>
</tr>
<tr>
<td>Quantitative Financial Economics</td>
<td>BU</td>
<td>MS</td>
<td>QFE</td>
<td></td>
</tr>
<tr>
<td>Telecommunications Management</td>
<td>BU</td>
<td>MS</td>
<td>TCOM</td>
<td></td>
</tr>
</tbody>
</table>
### GRADUATE COLLEGE
#### INTERDISCIPLINARY DEGREE PROGRAMS

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Science</td>
<td>GR</td>
<td>MS/PhD</td>
<td>ENSI</td>
<td>PSM</td>
</tr>
<tr>
<td>Environmental Mgmt Professional Science Masters</td>
<td>GR</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary Science</td>
<td>GR</td>
<td>MS</td>
<td>IDS</td>
<td>AVSS</td>
</tr>
<tr>
<td>Aviation and Space Science</td>
<td>GR</td>
<td>MS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Studies</td>
<td>GR</td>
<td>MS</td>
<td>IS</td>
<td></td>
</tr>
<tr>
<td>Photonics</td>
<td>GR</td>
<td>PhD</td>
<td>HOT</td>
<td></td>
</tr>
<tr>
<td>Plant Science</td>
<td>GR</td>
<td>PhD</td>
<td>PLS</td>
<td></td>
</tr>
<tr>
<td>Public Health</td>
<td>GR</td>
<td>MPH</td>
<td>PH</td>
<td>RUP</td>
</tr>
<tr>
<td>Veterinary Biomedical Science</td>
<td>GR</td>
<td>MS/PhD</td>
<td>VBSC</td>
<td></td>
</tr>
</tbody>
</table>

#### CENTER FOR VETERINARY HEALTH SCIENCES

##### DOCTOR OF VETERINARY MEDICINE DEGREE PROGRAM

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Major Code</th>
<th>Option Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Veterinary Medicine</td>
<td>VM</td>
<td>DVM</td>
<td>VM</td>
<td></td>
</tr>
</tbody>
</table>

#### CERTIFICATE PROGRAMS

<table>
<thead>
<tr>
<th>Certificate:</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic Information Systems</td>
<td>AS</td>
<td>CERT</td>
</tr>
</tbody>
</table>

#### Undergraduate Certificates:

<table>
<thead>
<tr>
<th>Certificate:</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer-Employee Interaction</td>
<td>BU</td>
<td>UCRT</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>AS</td>
<td>UCRT</td>
</tr>
<tr>
<td>International Competency</td>
<td>BU</td>
<td>UCRT</td>
</tr>
</tbody>
</table>

#### Graduate Certificates:

<table>
<thead>
<tr>
<th>Certificate:</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Security</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Bioenergy and Sustainable Technology</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Bioinformatics</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Business Data Mining</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Business Sustainability</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Engineering and Technology Management</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Gerontology</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Global Issues</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Grassland Management</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Information Assurance</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Interdisciplinary Toxicology</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Marketing Analytics</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Non-profit Management</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Online Teaching</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Public Health</td>
<td>GR</td>
<td>GCRT</td>
</tr>
<tr>
<td>Teaching English to Speakers of Other Languages</td>
<td>GR</td>
<td>GCRT</td>
</tr>
</tbody>
</table>

##### CENTER FOR HEALTH SCIENCES

##### DOCTOR OF OSTEOPATHIC MEDICINE DEGREE PROGRAM

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor of Osteopathic Medicine</td>
<td>COM</td>
<td>DO</td>
<td>OM</td>
</tr>
</tbody>
</table>

#### OSU GRADUATE PROGRAMS OFFERED THROUGH THE CENTER FOR HEALTH SCIENCES

<table>
<thead>
<tr>
<th>Biomedical Sciences</th>
<th>College</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Science</td>
<td>CHG</td>
<td>MS/PhD</td>
<td>BMED</td>
</tr>
<tr>
<td>Arson and Explosives Investigation</td>
<td>CHG</td>
<td>MS</td>
<td>FOSC</td>
</tr>
<tr>
<td>Forensic Document Examination</td>
<td>CHG</td>
<td>MS</td>
<td>FOSC</td>
</tr>
<tr>
<td>Forensic Science Administration</td>
<td>CHG</td>
<td>MS</td>
<td>FOSC</td>
</tr>
<tr>
<td>Health Care Administration</td>
<td>CHG</td>
<td>MS</td>
<td>HCA</td>
</tr>
<tr>
<td>Administration</td>
<td>CHG</td>
<td>MS</td>
<td>ADMN</td>
</tr>
<tr>
<td>Leadership and Entrepreneurship</td>
<td>CHG</td>
<td>MS</td>
<td>LAE</td>
</tr>
</tbody>
</table>

#### GRADUATE CERTIFICATE PROGRAM OFFERED THROUGH THE CENTER FOR HEALTH SCIENCES

<table>
<thead>
<tr>
<th>Major / Option</th>
<th>College</th>
<th>Degree</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forensic Examination of Questioned Documents</td>
<td>CHG</td>
<td>GCRT</td>
<td>CRFT</td>
</tr>
</tbody>
</table>
## Minors

### UNDERGRADUATE MINORS

<table>
<thead>
<tr>
<th>Minor Code</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEAB</td>
<td>AG</td>
</tr>
<tr>
<td>AGRN</td>
<td>AG</td>
</tr>
<tr>
<td>ANSI</td>
<td>AG</td>
</tr>
<tr>
<td>BIOC</td>
<td>AG</td>
</tr>
<tr>
<td>ENTO</td>
<td>AG</td>
</tr>
<tr>
<td>EEPP</td>
<td>AG/AS</td>
</tr>
<tr>
<td>FAEC</td>
<td>AG</td>
</tr>
<tr>
<td>FDSC</td>
<td>AG</td>
</tr>
<tr>
<td>FOR</td>
<td>AG</td>
</tr>
<tr>
<td>HORT</td>
<td>AG</td>
</tr>
<tr>
<td>LDED</td>
<td>AG</td>
</tr>
<tr>
<td>NREM</td>
<td>AG</td>
</tr>
<tr>
<td>PEST</td>
<td>AG</td>
</tr>
<tr>
<td>REM</td>
<td>AG</td>
</tr>
<tr>
<td>SLSI</td>
<td>AG</td>
</tr>
<tr>
<td>WLEC</td>
<td>AG</td>
</tr>
<tr>
<td>AERO</td>
<td>AS</td>
</tr>
<tr>
<td>AFAM</td>
<td>AS</td>
</tr>
<tr>
<td>AMIS</td>
<td>AS</td>
</tr>
<tr>
<td>AMSD</td>
<td>AS</td>
</tr>
<tr>
<td>ANTH</td>
<td>AS</td>
</tr>
<tr>
<td>PSAP</td>
<td>AS</td>
</tr>
<tr>
<td>ARTH</td>
<td>AS</td>
</tr>
<tr>
<td>STD</td>
<td>AS</td>
</tr>
<tr>
<td>BIOL</td>
<td>AS</td>
</tr>
<tr>
<td>BOT</td>
<td>AS</td>
</tr>
<tr>
<td>CAST</td>
<td>AS</td>
</tr>
<tr>
<td>CHEM</td>
<td>AS</td>
</tr>
<tr>
<td>CLST</td>
<td>AS</td>
</tr>
<tr>
<td>CSCI</td>
<td>AS</td>
</tr>
<tr>
<td>CS</td>
<td>AS</td>
</tr>
<tr>
<td>ECAS</td>
<td>AS</td>
</tr>
<tr>
<td>EM</td>
<td>AS</td>
</tr>
<tr>
<td>ENGL</td>
<td>AS</td>
</tr>
<tr>
<td>EEPP</td>
<td>AS/AG</td>
</tr>
<tr>
<td>EUST</td>
<td>AS</td>
</tr>
<tr>
<td>CHIN</td>
<td>AS</td>
</tr>
<tr>
<td>FREN</td>
<td>AS</td>
</tr>
<tr>
<td>GRMN</td>
<td>AS</td>
</tr>
<tr>
<td>GREK</td>
<td>AS</td>
</tr>
<tr>
<td>JPN</td>
<td>AS</td>
</tr>
<tr>
<td>LATIN</td>
<td>AS</td>
</tr>
<tr>
<td>RUSS</td>
<td>AS</td>
</tr>
<tr>
<td>SPAN</td>
<td>AS</td>
</tr>
<tr>
<td>GWST</td>
<td>AS</td>
</tr>
<tr>
<td>GEOG</td>
<td>AS</td>
</tr>
<tr>
<td>GEOL</td>
<td>AS</td>
</tr>
<tr>
<td>HLAS</td>
<td>AS</td>
</tr>
<tr>
<td>HIST</td>
<td>AS</td>
</tr>
<tr>
<td>INTS</td>
<td>AS</td>
</tr>
<tr>
<td>LEGL</td>
<td>AS</td>
</tr>
<tr>
<td>MATH</td>
<td>AS</td>
</tr>
<tr>
<td>MICR</td>
<td>AS</td>
</tr>
</tbody>
</table>

### UNDERGRADUATE MINORS

<table>
<thead>
<tr>
<th>Minor Code</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East Studies</td>
<td>AS</td>
</tr>
<tr>
<td>Military Science</td>
<td>AS</td>
</tr>
<tr>
<td>Music</td>
<td>AS</td>
</tr>
<tr>
<td>Philosophy</td>
<td>AS</td>
</tr>
<tr>
<td>Physics</td>
<td>AS</td>
</tr>
<tr>
<td>Political Information and Security Analysis</td>
<td>AS</td>
</tr>
<tr>
<td>Political Science</td>
<td>AS</td>
</tr>
<tr>
<td>Psychology</td>
<td>AS</td>
</tr>
<tr>
<td>Religious Studies</td>
<td>AS</td>
</tr>
<tr>
<td>Russian and East European Studies</td>
<td>AS</td>
</tr>
<tr>
<td>Sociology</td>
<td>AS</td>
</tr>
<tr>
<td>Statistics</td>
<td>AS</td>
</tr>
<tr>
<td>Studio Art</td>
<td>AS</td>
</tr>
<tr>
<td>Theatre</td>
<td>AS</td>
</tr>
<tr>
<td>Zoology</td>
<td>AS</td>
</tr>
<tr>
<td>Accounting</td>
<td>BU</td>
</tr>
<tr>
<td>Business Sustainability</td>
<td>BU</td>
</tr>
<tr>
<td>Creativity Studies</td>
<td>BU/ED</td>
</tr>
<tr>
<td>Economics (Business)</td>
<td>BU</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>BU</td>
</tr>
<tr>
<td>Finance</td>
<td>BU</td>
</tr>
<tr>
<td>General Business Administration</td>
<td>BU</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>BU</td>
</tr>
<tr>
<td>Information Assurance</td>
<td>BU</td>
</tr>
<tr>
<td>International Business</td>
<td>BU</td>
</tr>
<tr>
<td>Management</td>
<td>BU</td>
</tr>
<tr>
<td>Management Information Systems</td>
<td>BU</td>
</tr>
<tr>
<td>Management Science and Computer Systems</td>
<td>BU</td>
</tr>
<tr>
<td>Marketing</td>
<td>BU</td>
</tr>
<tr>
<td>Sports Management</td>
<td>BU</td>
</tr>
<tr>
<td>Aerospace Administration &amp; Operations</td>
<td>ED</td>
</tr>
<tr>
<td>Aviation Security</td>
<td>ED</td>
</tr>
<tr>
<td>Professional Pilot</td>
<td>ED</td>
</tr>
<tr>
<td>Creativity Studies</td>
<td>ED/BU</td>
</tr>
<tr>
<td>Coaching Science</td>
<td>ED</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>ED</td>
</tr>
<tr>
<td>Health Education and Promotion</td>
<td>ED</td>
</tr>
<tr>
<td>Leadership</td>
<td>ED</td>
</tr>
<tr>
<td>Recreation Management and Therapeutic Rec</td>
<td>ED</td>
</tr>
<tr>
<td>Architectural Studies: History and Theory</td>
<td>EN</td>
</tr>
<tr>
<td>Fire Protection Systems</td>
<td>EN</td>
</tr>
<tr>
<td>Homeland Security Science and Technology</td>
<td>EN</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>EN</td>
</tr>
<tr>
<td>Petroleum Engineering</td>
<td>EN</td>
</tr>
<tr>
<td>Safety and Exposure Sciences</td>
<td>EN</td>
</tr>
<tr>
<td>Apparel Design and Production</td>
<td>HS</td>
</tr>
<tr>
<td>Child Development</td>
<td>HS</td>
</tr>
<tr>
<td>Gerontology</td>
<td>HS</td>
</tr>
<tr>
<td>Human Sciences</td>
<td>HS</td>
</tr>
<tr>
<td>Merchandising</td>
<td>HS</td>
</tr>
<tr>
<td>Nutritional Sciences</td>
<td>HS</td>
</tr>
</tbody>
</table>

### GRADUATE MINORS

<table>
<thead>
<tr>
<th>Minor Code</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGBU</td>
<td>GR</td>
</tr>
<tr>
<td>AGEC</td>
<td>GR</td>
</tr>
<tr>
<td>ENTO</td>
<td>GR</td>
</tr>
<tr>
<td>PLP</td>
<td>GR</td>
</tr>
<tr>
<td>STAT</td>
<td>GR</td>
</tr>
</tbody>
</table>

---

The table above lists undergraduate and graduate minors offered at Oklahoma State University, categorized by their respective colleges.
New Student Orientation and Enrollment

Office of New Student Orientation and Enrollment
Missy Wikle, MA—Director
Campus Address and Phone:
321 Student Union, Stillwater, OK 74078
405.744.3636
Website: newstudents.okstate.edu  E-mail: newstudents@okstate.edu

Orientation and Enrollment
New Student Orientation is a required program for all incoming freshman and transfer students. Developed to assist in the transition to Oklahoma State University, the program introduces campus resources, offices and information while familiarizing new students with the campus and Stillwater communities.

During orientation, students:
• Learn about opportunities ahead and prepare for academic transition from high school or another institution to OSU.
• Develop expectations of OSU and learn what is expected of OSU students.
• Define potential majors, careers, minors, and secondary areas of study.
• Work with academic advisers to learn about degree program choices and discover initial tools for success at OSU.
• Enroll in classes.
• Work with an Orientation Leader and mentor who provides information from a student perspective.

New Freshmen. New Student Orientation for first time, full time freshman occurs during the months of May, June and July for those attending in fall and in December and January for those beginning in the spring semester. The standard summer orientation is an overnight session where students meet with academic advisers in multiple settings and have time to consider course options prior to enrollment. An alternate one day option covers enrollment only, and is available during the summer or mid-year orientation programs.

Transfer Students. Transfer Students have several options for New Student Orientation. For those admitted early, Transfer Orientation in April or November is the first opportunity to learn about OSU and enroll. For those admitted closer to the semester start, an alternative Transfer Orientation during the months leading up to the first day of class is available.

Concurrent Students. Students who choose to concurrently enroll in high school and college courses organize their orientation and enrollment through the New Student Orientation office. An abbreviated orientation meeting will work around your current class schedule as you make plans to enroll at OSU. Concurrent students planning to attend OSU as a first time, full time freshmen following high school graduation will enroll through one of the New Freshman Orientation and Enrollment programs described above.

Pride in OSU is a huge part of being a student and campus traditions are what connect you to the campus and to students and alumni across the world. Your transition to OSU includes two additional parts.

Camp Cowboy
Each summer, a group of OSU student leaders coordinate special weekend programs called Camp Cowboy. This optional fun-filled three day experience offers an opportunity to discover new friends, new experiences and new ideas. Camp Cowboy includes small group activities, a ropes course, camp fires and much more. For students who can only travel to Stillwater once in the summer, most Camp Cowboy weekends fall immediately prior to or following New Student Orientation and Enrollment programs. Visit campcowboy.okstate.edu for more information.

Welcome Week
In August of every year, the Office of Student Affairs sponsors a new student welcome event called Welcome Week. This optional program for new students continues the transition to OSU while providing opportunities to meet other students, faculty and staff; experience OSU traditions; understand academic expectations; learn about resources available and find key buildings on campus. Designed to help students transition to OSU before classes begin, opens with the OSU Convocation Ceremony and includes campus tours, academic advising meetings, motivational presentations, and social events. Visit welcomeweek.okstate.edu for more information.

Student Self Service (SIS)
Student Self Service (SIS) provides online access which allows students to view and update their academic and personal information in a self-service system. The majority of SIS use comes during enrollment when students may use the system to view the OSU Catalog course descriptions, search open sections of specific courses, and drop and add classes from their schedule. In addition, the SIS system connects students to:
• Class schedule, grades and unofficial academic transcript
• Desire2Learn online classroom
• Personal information housed on the system
• Official academic transcript request
• Student Rights and Responsibilities document
• Official OKSTATE e-mail account
• Bursar account, financial aid connections and payment options

Orange Key Account (O-KEY)
Every OSU student creates a personal O-Key account they will use to choose an okstate.edu e-mail account and access campus network and computing resources. It is very important to access and set up the O-Key account after applying for admission. To activate visit okey.okstate.edu.

ID Services
The OSU ID card is the official identification card for Oklahoma State University. It is used for photo identification, access to campus buildings and facilities, charges to the OSU Bursar, and tickets to a variety of campus events and services. OSU IDs will be made during the New Student Orientation and Enrollment program.

Placement Exams
Assessment and Testing can save both money and time by allowing students to test out or receive credit for courses in which they already know the material or for placement in a course level. Residual ACT and SAT, CLEP and Placement credit exams are administered by University Testing and Evaluation Services, located on the corner of Walnut St. and Admiral Ave. Exams are given by appointment. Visit uat.okstate.edu or call 405.744.5958 to set up an appointment.

Math Placement: Beginning with enrollment for Fall 2012, all incoming OSU students must complete the OSU Math Placement Exam before enrollment in any college level mathematics course. The OSU Math Placement exam is an online instrument. For testing instructions and additional information, visit placement.okstate.edu/math or contact the Office of New Student Orientation & Enrollment at 405.744.3636.

Foreign Language Placement: Students who wish to continue in a foreign language for which they have taken two or more years in high school, may take a free placement test through the Office of Foreign Languages and Literature. This exam identifies the best college level starting point. If the student completes the identified course with a minimum grade of ‘B’, additional credits may be awarded for up to ten hours in the language. Contact the Arts and Sciences Student Success Center at 405.744.5658 for additional information.

Advanced Placement and International Baccalaureate: Students requesting college credit through Advanced Placement and International Baccalaureate programs should have test scores sent directly to OSU Undergraduate Admissions from the testing agency in order to apply credits earned to their program of study.

2014-2015 University Catalog
Adding or Dropping Courses

Adding Courses. Approval from the student’s academic adviser is required for adding a course. The sixth day of a regular semester, or the third class day of an eight-week summer session, or proportionate periods for short courses is the last day a course may be added (nonrestrictive). With instructor approval, a course may be added during the second week of classes of a regular semester, or the fourth or fifth day of an eight-week summer session (restrictive).

During the restrictive period, students must obtain their instructor’s and adviser’s signatures on a drop/add card and submit it to the Office of the Registrar in 322 Student Union to add a new course to their schedule.

Dropping Courses. Dropping refers to the dropping of one or more courses while remaining enrolled in at least one other OSU course for a given semester. Courses may not be dropped without the approval of the student’s academic adviser. Enrollment changes, such as dropping courses, are the responsibility of the student. Failure to attend classes or nonpayment of tuition and fees does not constitute dropping a course.

General drop periods are provided in the table below. The Academic Calendar provides specific dates for each term. Exceptions to these deadlines may be considered by petition due to documented extraordinary circumstances and committee approval. The Retroactive Drop/Withdrawal Petition and the Petition for a Refund of Tuition and Fees are available on the Registrar’s website (registrar.okstate.edu).

<table>
<thead>
<tr>
<th>Periods for Dropping Full-Semester (16-week) Courses</th>
<th>Semester Time Period</th>
<th>Course Grade</th>
<th>Course-Related Tuition/Fee Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before term begins</td>
<td>No transcript record</td>
<td>100% refund</td>
<td></td>
</tr>
<tr>
<td>First 6 days</td>
<td>No transcript record</td>
<td>100% refund</td>
<td></td>
</tr>
<tr>
<td>Days 7-10</td>
<td>“W”</td>
<td>Partial refund</td>
<td></td>
</tr>
<tr>
<td>Weeks 3-12</td>
<td>“W”</td>
<td>No refund</td>
<td></td>
</tr>
<tr>
<td>Weeks 13-16</td>
<td>No drop option - Final grade as assigned by instructor</td>
<td>No refund</td>
<td></td>
</tr>
</tbody>
</table>

*Summer courses, intersession courses, and other courses that do not follow the standard 16-week semester follow proportionate drop/refund periods.

A student may not drop any course in which a violation of academic integrity is pending against the student. If the student admits responsibility for a violation meriting a grade of “F” for an assignment or examination, the instructor or Academic Integrity Panel may permit the student to drop the course with a grade of “W.” If the student is found not responsible for the violation, he or she may drop the course with either a “W” or “F” (according to the drop grade policy) appearing on the academic record. If the student is found responsible for the violation, the instructor may assign an appropriate sanction, including assigning the grade “F” for the assignment/examination or “F!” for the course. (See Policy and Procedures Letter 02-0822).

International students need to consult with International Students and Scholars (ISS) before dropping courses or withdrawing for the semester. Under reporting regulations required by the Student and Exchange Visitor Information System (SEVIS), dropping below full-time can put a student’s visa status in jeopardy.

Cancelling Enrollment and Withdrawing from the University. Enrollment cancellation occurs when a student drops all classes before classes begin, that is, before the applicable semester or session begins. Student requests to cancel enrollment must be received by the Office of the Registrar before the first day of classes for the term. Enrollment changes, such as cancelling enrollment or withdrawing from the University are the responsibility of the student. Failure to attend classes or nonpayment of tuition and fees does not constitute notice of cancellation.

Withdrawing from the University occurs when a student drops all classes after classes begin, that is, after the applicable semester or session begins. The withdrawal process is initiated with the student’s academic adviser or in the student’s academic student services office. International students must also consult with International Students and Scholars (ISS) before dropping courses or withdrawing for the semester. Under reporting regulations required by the Student and Exchange Visitor Information System (SEVIS), dropping below full-time can put a student’s visa status in jeopardy.

General cancellation and withdrawal periods are provided in the table below. The Academic Calendar provides specific dates for each term. Exceptions to these deadlines may be considered by petition due to documented extraordinary circumstances and committee approval. The Retroactive Drop/Withdrawal Petition and the Petition for a Refund of Tuition and Fees forms are available on the Registrar’s website (registrar.okstate.edu).
Cancellation/Withdrawal Periods for Full-Semester (16-week) Courses

<table>
<thead>
<tr>
<th>Semester Time Period*</th>
<th>Withdrawal Transaction Notation for the Semester</th>
<th>Course Grade</th>
<th>Course-Related Tuition/Fee Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before term begins (cancellation)</td>
<td>No transcript record</td>
<td>No transcript record</td>
<td>100% refund</td>
</tr>
<tr>
<td>First 6 days</td>
<td>&quot;Withdrawn&quot;</td>
<td>No transcript record of individual courses</td>
<td>100% refund</td>
</tr>
<tr>
<td>Days 7-10</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot;</td>
<td>Partial refund</td>
</tr>
<tr>
<td>Weeks 3-12</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot;</td>
<td>No refund</td>
</tr>
<tr>
<td>Weeks 13-14</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot; or &quot;F&quot; as assigned by instructor</td>
<td>No refund</td>
</tr>
<tr>
<td>Weeks 15-16</td>
<td>No withdrawal option</td>
<td>Final grade as assigned by instructor</td>
<td>No refund</td>
</tr>
</tbody>
</table>

*Summer courses, intersession courses, and other courses that do not follow the standard 16-week semester follow proportionate cancellation/withdrawal/refund periods.

Veteran Benefit Services

Oklahoma State University maintains a full-time office of veteran benefit services for the convenience of veterans and their dependents. OSU is an approved institution for students to receive education benefits by the Department of Veteran Affairs (DVA). Information and assistance is available for completion of appropriate forms necessary to apply for education benefits. The DVA has specific requirements regarding course work and attendance; contact a veteran's representative in the Office of the Registrar, 322 Student Union, for more information.

Faculty and Staff Enrollment in University Courses

Faculty. Permanent (tenure track), full-time (100%) members of the faculty are eligible to enroll for credit in one course per semester or a maximum of five hours during normally scheduled working hours and receive discounted tuition and fees as indicated below. To be eligible for the faculty/staff fee waiver, an employee must submit a completed Faculty - Staff Tuition and Fee Waiver Request form to the Office of the Registrar prior to the beginning of classes. If enrollment does not exceed one course or five credit hours, only the department head’s approval is needed to receive the fee waiver. If the employee is enrolled in more than one course or five credit hours, the employee’s dean and vice president must also give approval for the waiver.

For full-time 100% faculty enrolled in University courses, the following fees will be waived:

- a. Student activity fees
- b. Student activity fee - Athletic fee
- c. Health Services fee
- d. Transit/Parking Services fee
- e. Student Development fee
- f. Daily O’Collegian fee

Faculty members must pay 50% of the general tuition, 100% of any additional fees not listed above, as well as 100% of any special course charges. Some courses taught through extension, outreach and year-long independent study are excluded. For faculty members who enroll in NOC-Stillwater courses, the fees listed above may be waived, but no tuition is waived. For more information contact the department offering the course to determine whether the tuition waiver applies. For more information, refer to the Policy and Procedures Letter 3-0744.

Official Records

Six Week Progress Reports

Faculty report six week progress grades for all students (regardless of classification) enrolled in 1000- and 2000-level classes. This will normally occur during the seventh week of classes. Student athletes will have all six week grades reported, not just 1000- and 2000-level. Progress reports are made available to students and to the students' advisers through the Student Information System (SIS).

Grade Reports

Reports of the final grades of all students are compiled and released shortly after the end of each semester by the Office of the Registrar. These reports are made available electronically to the students, the students' advisers and the students' deans through the Student Information System (SIS).

Official Transcripts

All official transcripts of student academic records at OSU are prepared and released by the Office of the Registrar. The official transcript includes the complete academic record, both undergraduate and graduate, as well as the signature of the University Registrar and the official seal of the University. Transcripts of academic records at OSU may be ordered in the following ways:

1. Online via the Student Information System (SIS).
2. Mail or fax a completed, signed Transcript Request form to the Office of the Registrar (forms can be downloaded from registrar.okstate.edu).
3. In person at the Office of the Registrar, 322 Student Union; with a photo ID.

Students with transcript holds (such as holds due to outstanding financial obligations to the University) will not be granted an official transcript until the hold has been cleared with the appropriate University officials. Copies of transcripts from other institutions cannot be furnished.

Students’ Rights to Privacy

The Family Educational Rights and Privacy Act of 1974 (Buckley Amendment) was designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records in all offices, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings.

An OSU student has the right to:

1. Inspect and review information contained in his or her educational records within 45 days of the day that the University receives a written request from the student.
2. Challenge the contents of the educational record.
3. Have a hearing if the outcome of a challenge is unsatisfactory.
4. Submit an explanatory statement for inclusion in the educational record, if the outcome of the hearing is unsatisfactory.
5. Secure a copy of the institutional policy, which includes the location of all educational records.
6. Prevent disclosure, with certain exceptions, of personally identifiable information from the educational record.
7. File a complaint with the U.S. Department of Education concerning alleged failures by the University to comply with the requirements of FERPA. The name and address of the office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, D.C. 20202-5901.

Withholding Disclosure of Information. Currently enrolled students may withhold disclosure of directory information. A student may file a written request with the Office of the Registrar not to release personally identifiable information, including directory information. Such requests will be honored until revoked by
the student. The University assumes that failure on the part of any student to specifically request the withholding of directory information indicates individual approval for disclosure.

**Access to Records.** Students may inspect and review their educational records by making a written request to the office that maintains the records (see Location of Records below). No non-directory information regarding students' educational records may be disclosed to anyone without written consent of students, except for selected purposes as authorized by federal law, such as:

1. To "school officials" who have a "legitimate educational interest" in the student.
2. Upon request to another institution to which a student seeks or intends to enroll or is already enrolled if the disclosure is related to the student's enrollment or transfer.
3. In response to a lawfully issued court order or subpoena.
4. In connection with financial aid if the information is necessary to determine aid eligibility or to enforce the conditions of the aid.
5. To accrediting organizations to carry out their accrediting functions.
6. To organizations conducting studies for or on behalf of the school in order to develop, validate, or administer predictive tests, administer student aid programs, or improve instruction.
7. To authorized representatives of the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, and to State and local educational authorities in connection with an audit or evaluation of an education program or for compliance with Federal legal requirements related to those programs.
8. To appropriate officials in connection with a health or safety emergency.
9. Final results of certain disciplinary proceedings related to an alleged perpetrator of a crime of violence or a non-forcible sex offense.
10. To parents of a student regarding the student's violation of any Federal, State, or local law or of any rule or policy of the school governing the use or possession of alcohol or a controlled substance if the school determines the student committed a disciplinary violation and the student is under the age of 21.

**Parental Access to Records.** At the postsecondary level, parents have no inherent rights to inspect their son's or daughter's educational records. Information regarding educational records is best obtained by direct communication between the parent and the student. Students may consent to release their educational records to parents, legal guardians, or other individuals by completing the appropriate form in the Office of the Registrar. Such consent should be given in an uncoercive environment. Parents of a dependent student may challenge denial of access to educational records by producing the most current copy of Internal Revenue Form 1040.

**Definitions.**

"Educational Record" refers to those records which are directly related to a student and are maintained by an educational institution.

"Directory Information" includes: student's name; local and permanent address or hometown; telephone number; year of birth; major field of study; weight and height of student participating in officially recognized sports; dates of attendance at Oklahoma State University; degrees, honors, and awards granted or received and dates granted or received; academic classification such as freshman, sophomore, junior, senior, etc.; institutional electronic mail address; most recent educational institution previously attended; dissertation or thesis title; adviser or thesis/dissertation adviser; participation in officially recognized organizations, activities, and sports; parents' names and addresses (city and state only).

"School official" is defined as an individual currently serving as a member of the Oklahoma State University Board of Regents or classified as faculty, administrative, or professional, and the staff such school officials supervise; the President and CEO of the Alumni Association and President and CEO of the Oklahoma State University Foundation and the staff they supervise; the National Student Clearinghouse; and contractors, volunteers, and other non-employees performing institutional functions as school officials with legitimate educational interests.

"Legitimate educational interest" A school official has a "legitimate educational interest" if a review of a student's record is necessary to fulfill the official's professional responsibilities to the University. School officials may have legitimate educational interests both in students who are currently enrolled and in those no longer enrolled.

**Location of Records.** Several offices share responsibility for maintaining and releasing information pertaining to student education records. These include, but are not restricted to: a) the Office of the Registrar for academic records, b) the Office of Student Judicial Affairs for disciplinary records, c) the Office of the Bursar for billing and payment records, d) the Office of Scholarships and Financial Aid for scholarship and financial aid records, e) the Human Resources office and Career Services office for employment/placement records, and f) the Communications Service office for directory information.
Scholarships and Financial Aid

Office of Scholarships and Financial Aid
Chad Blow—Senior Director
Julie Berg—Associate Director
Matt Short—Associate Director
Cathy Bird—Assistant Director, Loan Processing and Records Management
Vacant—Assistant Director, Scholarships
Linda Good—Assistant Director, Client Services
Margaret Betts—Assistant Director, Special Programs

Campus Address and Phone:
119 Student Union, Stillwater, OK 74078-5061
405.744.6604          FAX 405.744.6438
Website: financialaid.okstate.edu  E-mail: finaid@okstate.edu

Students who need financial assistance to attend college are encouraged to consider the many types of financial aid available through the OSU Office of Scholarships and Financial Aid. These programs include scholarships, grants, loans, and part-time jobs. More than 80 percent of all OSU students receive some type of financial assistance to fund their education.

Scholarship Programs
Oklahoma State University annually offers more than $55 million in tuition scholarships and more than $30 million in other scholarships to qualifying freshman, transfer, continuing and graduate students. In addition to the scholarships discussed here, students are encouraged to contact community and/or tribal agencies, as appropriate, to inquire about non-OSU scholarships.

OSU’s scholarships are awarded on the basis of academic achievement, academic potential, leadership activities, or community service, and many consider financial need. Scholarships are funded by various campus academic and administrative offices, the OSU Foundation, or in conjunction with private industry, private foundations, the Oklahoma State Regents for Higher Education, and the state of Oklahoma.

Selected state programs, such as the OSHRE Academic Scholars Program, accept scores recorded on national test dates only. The OSU scholarship program accepts both national test scores and residual tests taken at OSU. State and University agencies may establish a cap on total scholarship dollars a student may receive from state and University sources, precluding students from receiving funds that exceed legitimate educational costs. The Undergraduate Application for Admission and Scholarships serves as the scholarship application for all new undergraduate students. Scholarships for continuing undergraduate students are awarded based on academic performance, financial need, or both. Continuing undergraduate students should also check with their academic department and the Graduate College regarding application procedures and deadlines.

Graduate students seeking cash or tuition scholarships should contact their academic departments and the Graduate College regarding application procedures and deadlines.

Tuition Scholarships
Tuition scholarships are awarded to both in-state and out-of-state students, and they vary in value and length. Tuition scholarships for Oklahoma residents are awarded to incoming freshman students who have attained high scholastic standing in high school. Tuition scholarships for nonresident students are awarded based on several criteria, including academic accomplishments or being a child or grandchild of an OSU alumnus. Students receiving a nonresident tuition scholarship have some or all of their nonresident tuition charges waived and pay in-state tuition rates and the remainder of any nonresident tuition not covered by this scholarship.

Transfer tuition scholarships are offered to outstanding students transferring to OSU from two-year and four-year colleges. The tuition scholarship priority deadline for students entering OSU in fall is February 1st; the final deadline is July 1. The final deadline for students entering OSU in the spring is October 15th.

A student may receive only one tuition scholarship at a time. However, students may receive multiple cash awards such as the President’s Distinguished Scholarship (PDS), President’s Leadership Council (PLC) scholarship, or college and departmental awards. Each student with a multiple-year scholarship is required to meet specific renewal criteria to continue receiving his or her scholarship the following year (up to a specified maximum number of years of eligibility).

Cash Scholarships
A variety of cash scholarships are offered to OSU students at all levels of study. Funding for these awards comes from several sources, including the OSU Foundation, the Oklahoma State Regents for Higher Education, OSU academic colleges and departments, and private sources. Undergraduate students can find more information about OSU and non-OSU cash scholarships in the Office of Scholarships and Financial Aid, 119 Student Union, or online at financialaid.okstate.edu. Graduate students can find more information by contacting the OSU Graduate College.

Federal/State Aid Programs
Federal aid at OSU is awarded on the basis of demonstrated financial need. Each student who wishes to be considered for need-based assistance should submit the Free Application for Federal Student Aid (FAFSA) as soon after January 1 as possible to receive aid for the succeeding academic year. Early application is encouraged since OSU receives limited funding for the Supplemental Educational Opportunity Grant (SEOG), Federal Work-Study (FWS) and Perkins Loan programs. Funding for state grants, including the Oklahoma Tuition Aid Grant (OTAG), is limited and earliest applicants receive priority for funds.

Students can apply for assistance by submitting the FAFSA electronically at www.fafsa.ed.gov.

An analysis of the FAFSA is used to determine demonstrated need for federal, state, and institutional programs such as Federal Pell Grants, Federal Supplemental Educational Opportunity Grants (FSEOG), Oklahoma Tuition Aid Grants (OTAG), Federal Perkins Loans, William D. Ford Direct Federal Loans, Federal Work-Study (FWS), and tuition scholarships.

There are also programs available for students who do not demonstrate financial need. The Federal Direct Parent (PLUS) Loan Program, the Federal Direct Unsubsidized Loan Program, and the Federal Direct Graduate PLUS Loan allow students and parents of dependent undergraduates, to borrow funds to meet educational expenses.

To be considered for financial aid, a student must:

1. Demonstrate financial need, except for some loan and scholarship programs.
2. Be a U.S. citizen or eligible non-citizen.
3. Be enrolled as a degree-seeking candidate, including a program of study abroad.
4. Meet minimum satisfactory academic progress standards.
5. Have a high school diploma or GED.
6. Not be in default on any federal loan, not have borrowed in excess of the allowable limits and not owe a refund to any federal grant program (including the Oklahoma Tuition Aid Grant program).
7. Be prompt in responding to any requests for additional information made by the Office of Scholarships and Financial Aid.

Students and parents are encouraged to contact the Office of Scholarships and Financial Aid for information regarding financial assistance programs or to make an appointment with a financial aid counselor to discuss specific eligibility requirements. The office has information about programs and services online at financialaid.okstate.edu.

Grants
Undergraduate students who have not completed their first bachelor’s degree are eligible to be considered for the Federal Pell Grant and the Federal Supplemental Education Opportunity Grant. Undergraduate students who are Oklahoma residents are considered for the Oklahoma Tuition Aid Grant (OTAG).

Federal Pell Grant eligibility is determined by the U.S. Department of Education by using a congressionally-approved formula. Federal Supplemental Education Opportunity Grants (SEOG) are awarded to students who demonstrate financial need as reflected in the FAFSA. Funding in this program is limited and is usually awarded to applicants who demonstrate the most financial need.

Undergraduate, post-baccalaureate, and graduate students who are or who will be taking course work necessary to become elementary or secondary teachers may be eligible for the federal Teacher Education Assistance for College and Higher Education (TEACH) Grant. A recipient must sign the Agreement to Serve saying he or she will teach full-time in a designated teacher shortage area for four complete years (within eight years of completing the academic program) at an elementary or secondary school serving children from low income families.

2014-2015 University Catalog
If the student fails to carry out the service obligation, the TEACH Grant must be repaid as a Direct Unsubsidized Loan with interest accrued from the date the grant was first disbursed.

The Oklahoma Tuition Aid Grant (OTAG) is awarded to eligible undergraduate Oklahoma residents who may apply by correctly completing the FAFSA. Grant amounts are determined by the applicant’s enrollment status, demonstrated need, and by the availability of funds.

Federal Work-Study
The Federal Work-Study (FWS) program is designed to help students meet their educational expenses through part-time employment. The Office of Scholarships and Financial Aid determines award amounts on the basis of financial need. While all Federal Work-Study student employees are paid at least the current federal minimum wage, the actual rate of pay depends on their qualifications and the types of jobs they hold.

Eligible students may be employed by any participating office or department at OSU or at an off-campus, non-profit agency.

Loans
OSU has several loan programs for students who need financial assistance. These funds are available to students who meet the eligibility requirements of the various programs and are making satisfactory progress in their college work.

The rate of interest on a Federal Perkins Loan during the period of repayment is five percent simple interest per annum on the unpaid balance. Funding in this program is limited and is awarded to applicants who demonstrate significant financial need. Interest rates for the Federal Direct Loan programs are set annually by the federal government.

Enrollment Requirements
To be considered for loan funds, undergraduates must be enrolled in at least six hours in the fall, spring or summer semester. Undergraduates who plan to enroll in fewer than six hours for the semester may still be eligible for limited grant funding. Undergraduate tuition scholarship recipients must be enrolled in at least 12 OSU hours to receive the award for the fall or spring semester; tuition scholarships are not available for the summer. Scholarship recipients should review their award information to determine whether additional hours of enrollment are required to retain the scholarship for the following year.

Graduate students must be enrolled in at least four hours in the fall or spring semester and at least two hours in the summer to be considered for financial assistance for that semester. Graduate students receiving tuition scholarships from their academic departments or the Graduate College should contact the awarding office for enrollment requirements.

Federal and institutional aid recipients who are unsure of their eligibility for assistance based on their enrollment status are encouraged to contact the Office of Scholarships and Financial Aid for clarification. Recipients of non-OSU scholarships should check with the awarding agency to determine the minimum enrollment required for payment.

Eligibility for financial assistance is related only to the total number of credit hours in which the student enrolls. Certifiable enrollment status, based upon a combination of enrollment and employment (such as a graduate assistant enrolled in six hours with a 50% graduate assistant appointment), only assists with the deferral of loan repayment, never qualification for aid.

Return to Title IV Funds Policy
The OSU Office of Scholarships and Financial Aid, in accordance with federal regulations, calculates the return of Title IV Funds for any student who receives Title IV aid and subsequently withdraws before the end of the enrollment period/term. The full policy, including official and unofficial withdrawals, aid considered in the calculation, institutional charges, attendance and earned/unearned percentage, unearned aid by the institution, unearned aid by the student, post-withdrawal disbursement, and notification of the results of the calculation, can be found on the web at financialaid.okstate.edu.

Academic Progress
The OSU Office of Scholarships and Financial Aid is required by federal regulation to monitor the academic progress of all students who apply for financial assistance. The official record of the OSU Office of the Registrar is reviewed to determine student compliance with the policy.

The policy for federal aid and state (OTAG) recipients includes three components. Students must: (1) not exceed a maximum number of hours allowed for completion of the degree program; (2) maintain a minimum cumulative Graduation/Retention Grade Point Average; and (3) maintain a satisfactory pace toward program completion, defined as successful completion of at least 67% of the total cumulative hours attempted. A copy of the policy detailing the requirements is included with every award notice and is also available in the Office of Scholarships and Financial Aid and online at financialaid.okstate.edu.

Each undergraduate with a multiple-year scholarship is required to meet specific renewal criteria to continue receiving his or her scholarship the following year; the policy for each scholarship is included with the award letter and is available from the OSU Office of Scholarships and Financial Aid.

Recipients of athletic grant-in-aid must meet the eligibility requirements of the program.

Professional Education Certification
To receive financial assistance, students who are classified by the Graduate College as special students and who are also pursuing Professional Education certification must be enrolled in a required program for elementary or secondary teacher certification or recertification in Oklahoma (must be required to teach); and be enrolled in at least six hours in the fall or spring semesters or three hours in the summer term.

Professional Education students are eligible to apply for consideration in Federal Work-Study, Federal Perkins Loan, and Direct Loans (Subsidized and Unsubsidized). Due to the unique nature of the Professional Education program, students are encouraged to schedule an appointment with a financial aid counselor to discuss the required documentation needed for financial aid eligibility.

Approved Graduate Certificates
Students who are pursuing a graduate certificate approved for financial aid eligibility by the U.S. Department of Education are eligible for the same aid programs as graduate students pursuing master’s, doctorate, or professional degrees at OSU. Approved certificates include Aerospace Security, Bioenergy and Sustainable Technology, Bioinformatics, Business Data Mining, Business Sustainability, Engineering and Technology Management, Entrepreneurship, Global Issues, Grassland Management, Information Assurance, Interdisciplinary Toxicology, Non-Profit Management, Online Teaching, and Teaching English to Speakers of Other Languages.

Prerequisite Course Work for Admission to a Graduate Program
To be considered for federal assistance, students generally must be enrolled in a recognized academic program leading to a degree or certificate. However, if a student is enrolled at least half-time in course work that is required for admission to a graduate program at OSU, the student may be eligible for loan consideration for one calendar year (12 months) beginning on the first day of the loan period.

Students are only eligible for Ford Federal Direct Loan consideration.

Preparatory students who wish to be considered for assistance should schedule an appointment with a financial aid counselor to discuss their particular circumstances.
Tuition and Fees

It is important that students carefully consider the total cost of financing their education, from the entering term to the completion of their degree. If financial help will be needed beyond those funds which the student or the family is able to provide, the student should make the necessary applications for financial assistance well in advance of enrollment. Students should pay particular attention to early deadlines for application for grants, scholarships, work-study positions, and Perkins Loans. While the needs and resources of each student differ, the University can provide a general list of fees and expenses normally encountered.

Students are given information at the time they complete their enrollment on the procedures and deadlines for payment of tuition and fees. (See "Financial Obligation" in the "Bursar" section of this Catalog.)

The required tuition and mandatory fees for resident and nonresident students at Oklahoma State University are listed to the right. Resident and nonresident tuition rates are based on the undergraduate and graduate level of the course. All course offerings are listed by four-digit numbers with the first digit indicating the course level. Undergraduate courses are all courses with a first digit of 0 through 4. Graduate-division courses are all courses with the first digit 5 or above.

New freshmen who are Oklahoma residents are given the opportunity at the time of enrollment to select a guaranteed tuition rate that is locked in for four years. To maintain this rate, students must remain continuously enrolled as full-time students. The lock tuition rate is included in the undergraduate tuition and mandatory fees grid and detailed information is provided on the New Student Orientation and Enrollment website at newstudents.okstate.edu.

For the most recent student costs refer to the Office of the Bursar website at bursar.okstate.edu/tuition.html. Included in this section is information regarding fee definitions, refund policies, and residential life rates.

Tuition and fees are subject to change without notice, as provided by the University Board of Regents and OSRHE policies.

Starting fall 2014, OSU implemented a new block rate that includes tuition and University-wide fees for undergraduate students taking 12 to 18 credit hours. The “block” rate, equal to OSU’s 15-hour rate, is one of OSU’s strategies to help students stay on target to finish college in 4 years. University-wide fees (also called mandatory fees) include: student activity fees, student facility fees, library automation and technology fee, health services fee, student development fee, Daily O’Collegian fee, academic records and maintenance fee, academic excellence fee, transit/parking services fee, advising/assessment fee, university technology infrastructure maintenance fee, academic facilities, life safety and security fee and student union renovation fee. Academic Service Fees such as specific course fees and/or college based fees are not included in the block rate and continue to be charged on a per-credit-hour basis. Additional block rate information is available at: http://bursar.okstate.edu/block-rate-information.

Estimated Total Expenses for Students

An estimated budget (based on 2014-2015 figures) for an undergraduate student at OSU is as follows:

<table>
<thead>
<tr>
<th>Resident</th>
<th>Non Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Fees (based on 15 credit hours)</td>
<td>$4,220</td>
</tr>
<tr>
<td>University Housing and Board (based on average freshman housing and meal charges)</td>
<td>$4,355</td>
</tr>
<tr>
<td>Textbooks and Supplies</td>
<td>$515</td>
</tr>
<tr>
<td>Average Miscellaneous Personal Expenses</td>
<td>$2,280</td>
</tr>
<tr>
<td>Total per Semester</td>
<td>$11,370</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Resident</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and Fees (based on 15 credit hours)</td>
<td>$10,510</td>
</tr>
<tr>
<td>University Housing and Board (based on average freshman housing and meal charges)</td>
<td>$4,355</td>
</tr>
<tr>
<td>Textbooks and Supplies</td>
<td>$515</td>
</tr>
<tr>
<td>Average Miscellaneous Personal Expenses</td>
<td>$2,280</td>
</tr>
<tr>
<td>Total per Semester</td>
<td>$17,660</td>
</tr>
</tbody>
</table>

Undergraduate Block Rate Tuition and University-Wide (Mandatory) Fees (12-18 credit hours per fall or spring semester)†

<table>
<thead>
<tr>
<th>Resident</th>
<th>Non Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>$3,720.75</td>
<td>$10,013.25</td>
</tr>
<tr>
<td>$7.90</td>
<td>$7.90</td>
</tr>
<tr>
<td>$3.03</td>
<td>$0.30</td>
</tr>
<tr>
<td>$2.50</td>
<td>$2.50</td>
</tr>
<tr>
<td>$1.75</td>
<td>$1.75</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
</tbody>
</table>

Tuition and University-Wide (Mandatory) Fees

<table>
<thead>
<tr>
<th>Resident</th>
<th>Non Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>$147.50</td>
<td>$567.00</td>
</tr>
<tr>
<td>$169.60</td>
<td>NA</td>
</tr>
<tr>
<td>$14.50</td>
<td>$14.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
<tr>
<td>$7.90</td>
<td>$7.90</td>
</tr>
<tr>
<td>$0.30</td>
<td>$0.30</td>
</tr>
<tr>
<td>$4.70</td>
<td>$4.70</td>
</tr>
<tr>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>$5.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>$13.75</td>
<td>$13.75</td>
</tr>
<tr>
<td>$3.50</td>
<td>$3.50</td>
</tr>
<tr>
<td>$2.50</td>
<td>$2.50</td>
</tr>
<tr>
<td>$4.75</td>
<td>$4.75</td>
</tr>
<tr>
<td>$2.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>$2.30</td>
<td>$2.30</td>
</tr>
<tr>
<td>$10.15</td>
<td>$10.15</td>
</tr>
<tr>
<td>$17.50</td>
<td>$17.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
</tbody>
</table>

Undergraduate Tuition and University-Wide (Mandatory) Fees (per credit hour rate for 1-11 hours or other non-block enrollment)

<table>
<thead>
<tr>
<th>Resident</th>
<th>Non Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>$187.00</td>
<td>$765.00</td>
</tr>
<tr>
<td>$14.50</td>
<td>$14.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
<tr>
<td>$7.90</td>
<td>$7.90</td>
</tr>
<tr>
<td>$0.30</td>
<td>$0.30</td>
</tr>
<tr>
<td>$4.70</td>
<td>$4.70</td>
</tr>
<tr>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>$5.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>$13.75</td>
<td>$13.75</td>
</tr>
<tr>
<td>$3.50</td>
<td>$3.50</td>
</tr>
<tr>
<td>$2.50</td>
<td>$2.50</td>
</tr>
<tr>
<td>$4.75</td>
<td>$4.75</td>
</tr>
<tr>
<td>$2.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>$2.30</td>
<td>$2.30</td>
</tr>
<tr>
<td>$10.15</td>
<td>$10.15</td>
</tr>
<tr>
<td>$17.50</td>
<td>$17.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
</tbody>
</table>

Graduate Tuition and University-Wide (Mandatory) Fees (per credit hour)

<table>
<thead>
<tr>
<th>Resident</th>
<th>Non Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>$187.00</td>
<td>$765.00</td>
</tr>
<tr>
<td>$14.50</td>
<td>$14.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
<tr>
<td>$7.90</td>
<td>$7.90</td>
</tr>
<tr>
<td>$0.30</td>
<td>$0.30</td>
</tr>
<tr>
<td>$4.70</td>
<td>$4.70</td>
</tr>
<tr>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>$5.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>$13.75</td>
<td>$13.75</td>
</tr>
<tr>
<td>$3.50</td>
<td>$3.50</td>
</tr>
<tr>
<td>$2.50</td>
<td>$2.50</td>
</tr>
<tr>
<td>$4.75</td>
<td>$4.75</td>
</tr>
<tr>
<td>$2.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>$2.30</td>
<td>$2.30</td>
</tr>
<tr>
<td>$10.15</td>
<td>$10.15</td>
</tr>
<tr>
<td>$17.50</td>
<td>$17.50</td>
</tr>
<tr>
<td>$4.35</td>
<td>$4.35</td>
</tr>
</tbody>
</table>

†Modified 8/8/2014 to provide updated information.
The academic records and maintenance fee provides for the basic graduation cost, the maintenance of the academic record system and issuance of official transcripts.

The advising and assessment fee provides for skills assessment and evaluation of students’ capabilities at various stages of their academic careers, and to get feedback from students regarding their course work. This fee also supports the commitment to academic advising within each college to create a collaborative decision-making framework which students can identify and realize their educational goals. The goal is to preserve personalized advising services, reduce the adviser/student ratio in high demand areas and to develop advising technology such as degree audit systems to support an increased graduation rate. Support is also provided to students with career development, employment and internship services, including expanded interview opportunities, placement preparation, and other programs related to success after graduation.

The health services fee is assessed for comprehensive health and pharmacy services. The library automation and technology fee defrays the cost of equipment, software, and other aspects related to operating the online computerized library service. This fee also protects student access to heavily-used electronic journals and other information services.

The life safety and security fee provides for the assessment and continued implementation of campus safety measures that includes the "Code Red" emergency notification system to notify students and staff via voice mail, e-mail or text messages should there be an emergency situation. It also helps fund positions within the OSU Police Department. The O’Collegian fee supports the production and distribution of the newspaper, the Daily O’Collegian, which is an award-winning campus newspaper. The transit and parking services fee assists with maintenance and operations of the OSU Transportation Services.

The student development fee is used to support student participation in orientation efforts which are linked to recruitment and retention of freshmen as well as transfer students. Development and leadership opportunities for minority students will also be provided by these resources. It is also used to support campus life to cover costs for the guest speaker series, Student Union programs and the Student Union Activities Board.

The university technology and infrastructure maintenance fee provides for the maintenance of existing facilities, and the expansion and development of central and collegiate facilities, software, and multimedia capabilities. This fee also covers increasing costs in multiple areas, including network and system infrastructure, hardware and software costs and communications. Certain groups of students in special courses may be on campus for very short time intervals or may be required by the University to reside away from the campus area for the entire semester. Such students will be prevented from participating in campus activities and will not be charged student activity, health, student development, and transportation fees when enrolled (1) only in a specialized course(s) offered for a special interest group and not in any other course(s) in the University or (2) in a course(s) which requires that the student reside out of area for the entire semester or summer session (clinical laboratory science, geology and forestry summer camps, etc.). Other extenuating circumstances may be cause to consider denying use of and charge for these facilities or participation in activities sponsored by these fees.

Special Fees (In Addition to Mandatory Fees)

<table>
<thead>
<tr>
<th>Special Fee</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate International students</td>
<td>$75.00</td>
<td></td>
</tr>
<tr>
<td>Undergraduate Domestic students</td>
<td>$40.00</td>
<td></td>
</tr>
<tr>
<td>Graduate Domestic Degree Seeking students</td>
<td>$50.00</td>
<td></td>
</tr>
<tr>
<td>Graduate Domestic Nondegree Seeking students</td>
<td>$25.00</td>
<td></td>
</tr>
<tr>
<td>Graduate International students</td>
<td>$75.00</td>
<td></td>
</tr>
<tr>
<td>Audit without credit: tuition and fees are the same as credit enrollments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile parking permit (per year):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Life/Family Housing permit</td>
<td>$100.00</td>
<td></td>
</tr>
<tr>
<td>Commuter Student permit (Silver &amp; Green zones)</td>
<td>$120.00</td>
<td></td>
</tr>
<tr>
<td>Student Commuter Monroe St. Garage permit</td>
<td>$180.00</td>
<td></td>
</tr>
<tr>
<td>Student SW Parking Garage permit</td>
<td>$300.00</td>
<td></td>
</tr>
<tr>
<td>Student Commuter (Park &amp; Ride) permit</td>
<td>$60.00</td>
<td></td>
</tr>
<tr>
<td>Electronically delivered transcript (per transcript; optional service)</td>
<td>$8.00</td>
<td></td>
</tr>
<tr>
<td>Graduation fees:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth-year osteopathic medicine</td>
<td>$40.00</td>
<td></td>
</tr>
<tr>
<td>Graduate level: Business Professional fee</td>
<td>$250.00</td>
<td></td>
</tr>
<tr>
<td>Health risk assessment fee for first-time students - Stillwater campus only:</td>
<td>$20.00</td>
<td></td>
</tr>
</tbody>
</table>
### International student status maintenance fee:

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>per semester</td>
<td>$50.00</td>
</tr>
</tbody>
</table>

### Late enrollment fee:

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st day of term</td>
<td>$50.00</td>
</tr>
</tbody>
</table>

### Remedial courses:

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplementary fee (per credit hour, in addition to the general fee)</td>
<td>$24.00</td>
</tr>
</tbody>
</table>

### New Student Orientation & Enrollment fee (freshmen & transfer students - one time only)

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$75.00</td>
</tr>
</tbody>
</table>

### College Based Fees (per credit hour):

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Technology fee</td>
<td>$7.50</td>
</tr>
<tr>
<td>Arts &amp; Sciences Technology fee</td>
<td>$1.50</td>
</tr>
<tr>
<td>Business Technology fee</td>
<td>$7.50</td>
</tr>
<tr>
<td>Education Technology fee</td>
<td>$9.50</td>
</tr>
<tr>
<td>Human Sciences Technology fee</td>
<td>$11.50</td>
</tr>
<tr>
<td>Engineering Technology fee</td>
<td>$21.50</td>
</tr>
<tr>
<td>SSB Instruction Infrastructure</td>
<td>$4.50</td>
</tr>
<tr>
<td>Engineering Facilities/Equipment</td>
<td>$21.50</td>
</tr>
<tr>
<td>Arts &amp; Sciences Program fee</td>
<td>$23.00</td>
</tr>
<tr>
<td>Business Program fee</td>
<td>$20.50</td>
</tr>
<tr>
<td>Education Program fee</td>
<td>$20.50</td>
</tr>
<tr>
<td>Human Sciences Program fee</td>
<td>$25.50</td>
</tr>
<tr>
<td>HORT &amp; LA Facilities/EquipmentLab</td>
<td>$12.00</td>
</tr>
<tr>
<td>ASNR Facilities/Equipment</td>
<td>$22.50</td>
</tr>
</tbody>
</table>

### Outreach Course Fees

#### Standard Outreach Credit Courses

Standard outreach credit courses (course sections in the 500 range) adhere to the same tuition and fee schedule as other courses and incur the following supplemental fees that vary by the College offering the course. These courses are internet courses, video courses, Correspondence Education courses and other distance format courses that do not include student travel.

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Outreach Fee</td>
<td>$75.00 per credit hour</td>
</tr>
<tr>
<td>Arts &amp; Sciences Outreach Fee</td>
<td>$65.00 per credit hour</td>
</tr>
<tr>
<td>Education Outreach Fee</td>
<td>$85.00 per credit hour</td>
</tr>
<tr>
<td>Engineering Outreach Fee</td>
<td>$90.00 per credit hour</td>
</tr>
<tr>
<td>Human Sciences Outreach Fee</td>
<td>$90.00 per credit hour</td>
</tr>
<tr>
<td>International Studies &amp; Outreach Fee</td>
<td>$75.00 per credit hour</td>
</tr>
<tr>
<td>Spears School of Business Outreach Fee (undergraduate courses)</td>
<td>$90.00 per credit hour</td>
</tr>
<tr>
<td>Spears School of Business Outreach Fee (graduate courses)</td>
<td>$95.00 per credit hour</td>
</tr>
</tbody>
</table>

#### Non-Standard Outreach Credit Courses

Tuition and fees for non-standard outreach credit courses (course sections in the 600 range) vary. These courses typically are student travel courses and other special approved programs such as classes within a consortium agreement with an external institution. Both tuition and fees for these courses vary depending on the cost to maintain the course, consortium or related agreements, current travel fees, etc. Tuition and fees for a 600 section are final when the course is proposed by the related academic unit and approved by Academic Affairs prior to the first day of the course. Students may contact the College Outreach Office within the academic unit offering the course or contact the Division of International Studies and Outreach (405-744-6606) to determine tuition and fees for a specific 600-section course.

### Other Expenses

Books and supplies used by the student are available in the Student Union Bookstore at reasonable prices and may be charged to the student's Bursar account. Additional incidental and personal expenses such as clothing and entertainment will depend upon the individual student.

#### Sponsored International Students

Oklahoma State University charges a special administrative/management fee for sponsored international students and scholars who require third party billings and need extra assistance or whose sponsors have indicated a requirement for supplementary assistance beyond that of regular university programming. The customary sponsored student fee is $330 per semester. Sponsored programs may also include items such as special training, research costs, equipment, enrichment, required travel or any other needs deemed necessary by the sponsor. It is the charge of the Office of International Students and Scholars (ISS) to provide the most complete and appropriate educational program for sponsored international students and scholars. The ISS sponsored program is designed to coordinate, expedite and administer all aspects of procedures pertaining to related training. Sponsoring agencies should direct all matters to the Office of International Students and Scholars, 250 Student Union. E-mail may be sent to karen.sebring@okstate.edu. The fax number is 405.744.8120.

### Tuition and Fee Waivers for Faculty and Staff

Permanent, full-time, active members of the faculty and staff who meet the requirements under University Policy and Procedures 2-0108 or 3-0744 are eligible to enroll for credit or audit one course per semester or a maximum of five hours during normally scheduled working hours and receive discounted tuition and fees as indicated below. To be eligible under this fee policy, an employee must submit a completed Request for Faculty-Staff Fee Waiver form to the Office of the Registrar prior to the beginning of classes. If the form is not on file prior to the beginning of classes, the student will not be granted the waiver in fees. There is no limit on the number of courses a staff member may enroll in after normal working hours. If enrollment does not exceed one course, only the department head's approval is needed to receive a fee waiver. If the staff member is enrolled in more than one course, his or her dean and vice president must also give approval for a fee waiver.

For eligible full time 100% faculty or staff enrolled in University courses, the following fees will be waived:

- a. Student activity fees
- b. Student activity fee - Athletic fee
- c. Health Services fee
- d. Transit/Parking Services fee
- e. Student Development fee
- f. Daily O’ Collegian fee

Faculty and staff must pay 50% of the general tuition, 100% of any additional fees not listed above, as well as 100% of any special course charges. Some courses taught through year-long independent study, extension and outreach are excluded. For faculty and staff members who enroll in NOC-Stillwater courses, the fees listed above may be waived, but no tuition is waived. For more information, contact the department offering the course to determine whether the tuition waiver applies.

Any individual 65 years or older may audit a class at no charge. The audit fee is also waived for faculty and staff who have retired from the University under the Oklahoma Teacher Retirement System's "Rule of 80" or "Rule of 90" regardless of age at time of retirement.

### Refunds

Refunds and deposits that may be due a student will be first applied to encumbrances owed to the University.

#### Drop/Withdrawal Refund Policy

A student dropping a course:

- prior to the end of the sixth day of a regular semester, or the third day of the eight week summer session, or during the proportionate period for block or short courses, will receive a 100 percent refund of tuition and fees.

A student dropping a course:

- after the sixth day of a regular semester but prior to the end of the second week, or after the third day of the eight week summer session through the fifth day, or during the proportionate period for block or short courses, will receive a partial refund of tuition and fees.

A student dropping a course:

- after the second week of the regular semester, or after the first week of the eight week summer session, or during the proportionate period for block or short courses, will not receive a refund. (See Policy and Procedures Letter 02-0206.)

The institution may be required to return Federal Title IV aid for students who received Title IV aid disbursements and subsequently drop/withdraw. If the institution is required to return Title IV funds, the student will be required to pay for the institutional charges originally paid by the aid returned. Please visit the Return to Title IV policy at financialaid.okstate.edu/consumer-information/149-policies-return-to-title-iv.

### Repayment Policy

Financial aid is considered to be used first for direct educational costs (tuition and fees) and, if the student is in University housing, for room and board. If a student financial aid recipient withdraws and is eligible for a refund of tuition and fees and/or room and board, all or part of this refund will be used to reimburse Title IV federal financial aid program(s); state programs which apply to tuition (i.e. OKPromise); or institutional tuition and fee waiver programs.

If a student receives Title IV federal aid in excess of institutional charges and subsequently withdraws, he/she may be required to return a portion of the aid. The student is ineligible for further aid until the required repayment has been made. The aid is returned on the student’s behalf and a charge is placed on the student Bursar account for the repayment. For additional information, please visit the Return to Title IV policy at financialaid.okstate.edu/consumer-information/149-policies-return-to-title-iv.
Refund Policy for Students Entering Military Service
If a student is called to active military service during the term in which he or she is enrolled and has not completed sufficient work for receiving grades, the University will waive tuition and fees for that term. The student should submit a withdrawal form to the Office of the Registrar. Once the student has withdrawn and submitted a copy of the military orders, the student will receive a 100% waiver of the tuition and fees or a 100% refund of tuition and fees paid. The military orders, if not available at the time of the withdrawal, may be submitted at a later date at which time the waiver will be applied.

Housing and Residential Life Rates
All rates are approved by the OSU Board of Regents and are subject to change. The rates listed below are effective for the academic year 2014-2015. All rates include room rent and all utilities, including electricity, water, digital cable television, and Internet connection. All halls are open continuously throughout the academic year. Year round housing (9-month academic contract plus a summer contract) is available in each type of housing offered. See the Residential Life website for the most current information, including rates: www.reslife.okstate.edu. All rates are quoted per person and by the month for those who wish to purchase their contract to move off campus and for late cancellation charges.

Residence Halls
Traditional. Drummond Hall offers rooms for women and Kerr Hall offers rooms for men. Parker and Wentz Halls offer rooms for men and women. Most students are housed in double occupancy rooms, but single rooms can be requested. Iba hall offers co-ed and year-round housing.

Per Person - Academic Year (Kerr-Drummond, Parker & Wentz) or 12 month contract (Iba only) Monthly Rate
Single Room $632.00
Double Room $413.00

Stout Honors Hall offers three floors of double occupancy rooms. The fourth floor provides smaller designed - single rooms for non-freshman, non-honors students. Stout Hall offers 9-month housing only.

Per Person - Academic Year Monthly Rate
Single Room $652.00
Double Room $432.00

Furnished Deluxe Suites - Living Room in the Unit: Allen, Bennett, Booker, Jones, Patchin, Stinchcomb, and Zink Halls all offer deluxe suites for men and women with a living room in the unit, and all halls except Bennett offer a small kitchenette in the unit. These halls offer 9 month housing only.

Per Person - Academic Year Monthly Rate
4 Bdrm/2 Bath-private bedroom (Patchin-Jones, Zink-Alfie) $629.00
2 Bdrm/1 Bath-private bedroom (Booker, Stinchcomb) $734.00
2 Bdrm/2 Bath-shared bedroom (Patchin-Jones, Zink-Alfie) $474.00
1 Bdrm/1 Bath-shared bedroom (Booker, Stinchcomb) $530.00
- private bedroom (Booker, Stinchcomb) $790.00
2 or 3 Bed/2 Bath-shared bedroom (Bennett) $451.00
2 Bed/1 Bath or 3/4 Bed/2 Bath-private bdrm (kg) (Bennett) $699.00
2 Bed/1 Bath or 3/4 Bed/2 Bath-private bdrm (med) (Bennett) $620.00
2 Bed/1 Bath or 3/4 Bed/2 Bath-private bdrm (cm) (Bennett) $587.00
1 Bdrm/1 Bath-private bedroom (large) (Bennett) $759.00

Furnished Suites - No Living Room in the Unit: Village CASNR, Village HES, Village Hall C, Village Hall D, Village Hall E, Village Hall F, Bennett, Booker, and Stinchcomb Halls all offer suite style rooms with no living rooms. Booker and Stinchcomb Hall rooms feature a small kitchenette. All halls offer nine month housing, while Village Hall D offers year round housing.

Per Person - Academic Year (12 month contracts available in Village D) Monthly Rate
2 Bdrm-private bedrooms (CASNR, HS, Village C-F) $690.00
1 Bdrm-private bedroom (CASNR, HS, Village C-F) $726.00
1 Bdrm/1 Bath-private bedroom (Booker, Stinchcomb) $706.00
2 Bdrm/1 Bath-private bedroom (medium) (Bennett) $620.00
1 Bdrm/1 Bath-private bedroom (large) (Bennett) $706.00
1 Bdrm/1 Bath-private bedroom (medium) (Bennett) $654.00
1 Bdrm/1 Bath-shared bedroom (Bennett) $451.00

Apartments. Bost, Davis, Kamm, Morsani-Smith, Peterson-Friend, Sillington and Young Halls are available for men and women. Both furnished and unfurnished options are available. All apartments come with a fully furnished kitchen including a full-size washer and dryer. Davis, Morsani-Smith, Sillington, and Young offer year-round housing.

Per Person - Academic Year (12 month contract available in Davis, Morsani-Smith, Sillington and Young) Monthly Rate
1 Per Bedroom/4 Bedrooms, 2 Bath $680.00
1 Per Bedroom/4 Bedrooms, 2 Bath (unfurnished) $632.00
1 Per Bedroom/2 Bedrooms, 2 Bath $817.00
1 Per Bedroom/2 Bedrooms, 2 Bath (unfurnished) $773.00

Family and Graduate Student Housing. The University operates apartments to house married and single parents, and a limited number of single graduate and upper class students. Priority is given to families and graduate students. Individuals should apply eight to ten months in advance to assure choice of apartments. Furnished and unfurnished apartments are available. For a complete listing of available furniture, please see the Family and Graduate Student Handbook at www.reslife.okstate.edu.

The following 2014-2015 rates include all utilities (gas, water, electricity, digital cable television, and Internet connection). Please visit the Housing and Residential Life website at www.reslife.okstate.edu for the most up-to-date rates and information. All rates are quoted by the apartment unit (roommates can share the expenses).

Unfurnished Monthly Rate
*Williams 12-15, *Procter Neighborhoods $640.00
*West, *Stevens Neighborhoods $650.00
*Dernare Neighborhood $650.00
Williams 101-105 $780.00
Brumley Neighborhood $780.00
Morrison (2 bedroom) $1,040.00
Morrison (3 bedroom) $1,299.00

Furnished Monthly Rate
*Williams 12-15, *Procter Neighborhoods $680.00
*West, *Stevens Neighborhoods $690.00
*Dernare Neighborhood $690.00
Williams 101-105 $820.00
Brumley Neighborhood $820.00
Morrison (2 bedroom) $1,080.00
Morrison (3 bedroom) $1,339.00

*Air Conditioning optional for $101/mo

University Dining Services Meal Plans
University Dining Services (UDS) offers more than 32 dining options at the Oklahoma State University campus. UDS makes every effort to provide options to satisfy the hungriest student, the most selective eater, and those who prefer vegetarian options or have limited diets. The choices are endless, with something available from early morning to late night. From national franchises and specialty restaurants to convenience stores with freshly-made grab and go options, UDS provides students with the very best offerings. As UDS meal plan holders, students can use their meal plans in any of these 32 locations. Of course, other methods of payment can be used, including bursar charge, cash, and credit cards.

Freshmen who are living on-campus are required to have a minimum meal plan of the Bronze level, but can choose a higher level.

Meal Plan Charges:
- Meal plans are based on a declining dollars system. It works just like a debit card... Each time a student eats at a UDS dining outlet, the dollar amount spent is deducted from their balance. In the table below, "cost per semester" is equal to the starting balance of dollars available in the student's meal plan account.
- A maximum amount may be carried over from semester to semester. To receive the carry-over, the meal plan holder must have a contracted meal plan (not the G plan) for the following semester.
- Meal plan holders can eat in any of the dining outlets regardless of where they live. Meals can be eaten at the convenience of the students: when they want, where they want, as often as they want.

2014-2015 University Catalog
The table below describes the University Dining meal plans available:

<table>
<thead>
<tr>
<th>Contracted Meal Plan</th>
<th>2014-15 Cost per semester</th>
<th>Maximum Carryover with Meal Plan Contract</th>
<th>Amount charged at All You Care to Eat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platinum contract</td>
<td>$2,050</td>
<td>$300</td>
<td>$8.25</td>
</tr>
<tr>
<td>Gold contract</td>
<td>$1,750</td>
<td>$280</td>
<td>$8.50</td>
</tr>
<tr>
<td>Silver contract</td>
<td>$1,475</td>
<td>$220</td>
<td>$8.75</td>
</tr>
<tr>
<td>Bronze contract*</td>
<td>$1,225</td>
<td>$190</td>
<td>$9.25</td>
</tr>
<tr>
<td>Copper contract</td>
<td>$985</td>
<td>$160</td>
<td>$9.50</td>
</tr>
<tr>
<td>GPlan (non-contracted meal plan)**</td>
<td></td>
<td>$100</td>
<td>$9.65</td>
</tr>
<tr>
<td>Cash price</td>
<td></td>
<td></td>
<td>$9.75</td>
</tr>
</tbody>
</table>

*Freshmen living on campus must choose from the Bronze meal plan or higher.
**Non-contracted G plan is for students (except freshmen living on campus) who want occasional meals. Start with a minimum of $100 and balance will carry over from semester to semester.

Anyone can purchase a UDS plan, including on-campus residents, off-campus students, and faculty and staff members. For more information, contact the Dining Services Office at 405.744.4424 or see the website at dining.okstate.edu.
Office of the Bursar
Laurie Beets, MS—Director
Kim Miller—Assistant Director
Wilma White—Assistant Bursar
Joy Meyer—Manager of Student Loans/Debt Management
Tonya Jones—Financial Counselor
Steven Prudhomme—Senior Accountant
Cindy Buford—Manager of Tellers Operations
Melissa Valley—Accountant II

Campus Address and Phone: 113 Student Union, Stillwater, OK 74078-1014 405.744.5993
Website: www.bursar.okstate.edu E-mail: bursar@okstate.edu

Financial Obligation
Enrollment at Oklahoma State University incurs a financial obligation and responsibility of the student to pay all amounts owed in a timely manner. In order to remain in favorable financial standing with the University, and thereby continue to participate in its educational programs, services, and benefits, a student must meet all financial obligations incurred at the University on or before the bill due dates. By enrolling/registering in classes, you are accepting the responsibility of the costs associated with the courses unless you withdraw by the published dates to receive credit.

Federal law limits the information the University may provide to parents of OSU students. School officials may not disclose personally identifiable information about students or permit inspection of their records without written permission from the student, unless the Registrar’s Office has a Student Consent of Parental Access form on file.

Oklahoma State University combines enrollment costs and charges from different areas on campus into one consolidated student account. The Bursar Office generates a monthly electronic billing statement (e-bill) on the last business day of every month detailing charges, credits, and payments that occurred during the month. A billing notification is e-mailed to the student's University e-mail address and authorized users at the beginning of each month. A student must have an active University e-mail address to receive his/her e-bill notification. It is the student’s responsibility to maintain accurate addresses in SIS. An alternative email address and authorized user may be set up through the Student Information System (SIS) under “Payment Info” by clicking “Bursar Services” If someone other than the student should receive billing notifications. Students can view their billing statement, semester account activity, set up authorized users, and pay online via SIS at https://prodosos.okstate.edu by clicking “Bursar Services” under “Payment Info”. Authorized user login is located through the bursar website at http://bursar.okstate.edu.

Payment is due prior to the 15th of each month. Late fees and holds can be avoided by paying by the published deadline. Accounts must be paid in full before a student is eligible to enroll for future semesters or receive any records from the University. A late payment penalty of 1.5% will be assessed monthly (19.56% APR) for any past due charges. All tuition and fees (required and optional) and other charges (including housing/meal plans) are due prior to the 15th of the billing month.

It is the student’s responsibility to check his/her individual bursar account to verify that University-administered scholarships and waivers, as well as external scholarships, have been credited. Failure to view a bill does not relieve the student of his/her financial obligation, any late charges, and other penalties that may occur if the account is not paid by billing due dates.

In efforts to assist our students in meeting financial obligations, Oklahoma State University offers a semester based payment plan as an alternative to the traditional lump-sum payment method. This plan provides an opportunity for families (authorized users) and students to pay University-billed expenses in regular monthly payments. No finance charges are associated with the payment plan or enrollment holds if payments are made as promised. The Payment Plan is available online each semester. The student can sign-up online via SIS at http://bursar.okstate.edu then click the “Bursar Services” link under “Payment Info”. It is important to designate a parent under the authorized user tab by entering their email address for access to the payment plan enrollment.

September 15th is the deadline to enroll in the Fall plan and February 15th is the deadline to enroll for the Spring plan. Summer enrollment is not eligible for the plan. There is a $25 non-refundable application fee due at the time of application each semester. Payment plan participants receive installment payment due notifications in the monthly billing notification. The monthly billing notification informs payment plan participants of the total monthly billing statement amount for informational purposes.
student should be brought to the Bursar Office for deposit to his/her bursar account to facilitate the necessary governmental reporting. Notify the Bursar Office prior to the semester’s due date when a sponsor requires a billing invoice from OSU in order to process payment.

OSU is required annually to furnish you with a Form 1098-T, Tuition Statement, which reports qualified tuition and related expenses associated with your enrollment at OSU. This information assists you in determining whether you, or the person who can claim you as a dependent, may take either the tuition and fees deduction or claim an education credit to reduce federal income tax. For more information, see IRS Pub. 970, Tax Benefits for Education. Log into SIS, click on Bursar Services under the Payment Info heading and your 1098T statement is located on the welcome screen just below Statements. In order for us to prepare the forms accurately, Federal law requires you to furnish us with your correct taxpayer identification number (TIN). Generally, this number is your Social Security Number (SSN) or, if you are not eligible to obtain an SSN, you must obtain from the Internal Revenue Service (IRS) an individual taxpayer identification number (ITIN) and provide that number to us. Bring the Form W-9S (www.irs.gov) to provide your correct SSN or TIN to the Bursar Office or take your Social Security card to the Registrar’s Office. Failure to furnish a correct TIN (SSN) may result in the IRS assessing you a $50 penalty.
Academic Enrichment Programs

The Honors College
Keith Garbutt, PhD—Dean
Jessica Roark—Assistant Director
Erica Burns—Honors Academic Counselor
Ebie Hill-Williamson—Honors Academic Counselor
Brent Ladd—Honors Academic Counselor

Oklahoma State University is an active member of the National Collegiate Honors Council and the Great Plains Honors Council. The Honors College is composed of a university-wide General Honors component and specialized upper-division components at the departmental or college levels. The Honors College provides academically talented students with the opportunity to study, conduct research, and exchange ideas in an exciting and supportive academic environment. Honors sections are offered in many general education courses, and special honors seminars and interdisciplinary honors courses also are available. Honors classes are taught by outstanding faculty members and the classes are small to facilitate active student participation.

Completion of the requirements for the General Honors Award leads to special designation on the student’s OSU transcript, as does completion of the requirements for the Departmental or College Honors Award in the student’s academic major. Students who earn a minimum of 39 honors credit hours and complete the Departmental or College Honors Award, as well as the General Honors Award, with 3.5 OSU and cumulative grade-point averages at graduation, receive the Honors College Degree, including a special entry on their transcripts and special honors diplomas.

Additional advantages for active participants in The Honors College (minimum of six honors credit hours per semester and 12 honors credit hours for each two consecutive semesters for freshmen and sophomores and three honors credit hours per semester for juniors and seniors) include use of The Honors College Study Lounge in Old Central (with a computer lab), extended check-out privileges for library materials, priority enrollment for the following semester, and an honors housing option in Stout Hall (on a rooms-available basis).

Admission of new freshmen to The Honors College is based on an ACT composite score of 27 or higher (or comparable SAT score) with a high school grade-point average of 3.75 or higher. Application forms are included in the OSU Application for Admission. Entering freshmen who fail just short of these criteria may request a petition form from The Honors College. Students other than new freshmen may be admitted to The Honors College on the basis of their OSU and cumulative grade-point averages (7-99 hours earned) or $3.30; 60-93 hours earned: 4.40; $94 or more hours earned: 3.50). Transfer freshmen must have completed at least seven college credit hours (not including concurrent enrollment while in high school) to be eligible on the basis of college performance if they do not have the required high school grade-point average and ACT score. There is a February 1 deadline for regular acceptance based on the criteria outlined above. Applications submitted after February 1 will be considered on a space-available basis.

For additional information about The Honors College, interested students should consult the Dean or Assistant Director of The Honors College, 101 Old Central or visit www.okstate.edu/honors.

Oklahoma Scholar Leadership Enrichment Program
The Oklahoma Scholar-Leadership Enrichment Program (OSLEP) is a statewide academic program designed to develop scholarship and leadership abilities of outstanding students. Students study in intensive, five-day seminars at a distinguished scholar and are selected from Oklahoma’s 21 four-year colleges and universities. OSLEP recipients, junior and senior students with a 3.00 GPA are eligible to apply. OSLEP seminars are taken for three hours of credit. The only cost to students is the tuition - the program provides books and room and board during the seminar. The seminars are graded on a satisfactory/unsatisfactory basis and are transferred to OSU as Pass/Fail. Application should be made as early as in the academic year as possible. Further information and application materials may be obtained from OSU’s OSLEP Coordinator, Dr. Joshua Ward, Henry Bellmon Office of Scholar Development and Undergraduate Research, 334 Student Union.

Henry Bellmon Office of Scholar Development and Recognition
Joshua Ward, PhD—Director and Adjunct Professor of Microbiology and Molecular Genetics
Cathy Lopez—Office Manager
Tim O’Neil—Program Coordinator and Editor, OSU Journal of Undergraduate Research

OSU has long been a national leader and innovator in scholar development and, more recently, undergraduate research. For over 25 years, this office has prepared students for the future, whether in competition for prestigious national/international fellowships, admission to top graduate schools, securing highly competitive jobs, or attaining the skills required to grow as a leader. We offer diverse programs, targeted to a wide range of majors, year classifications, and interests in order to elevate a large number of students’ undergraduate experience. This office enhances undergraduate opportunity, encourages student-faculty mentoring, and promotes retention through four primary areas:

1. Scholarship/Fellowship Success

Outstanding students can compete for a wide range of prestigious national and international scholarships as juniors and seniors at OSU, such as the Rhodes, Marshall, Truman, Goldwater, Udall, and others. In addition, there is a host of lesser-known but still valuable opportunities that require students to prepare competitive applications. This office monitors student progress, provides important information, supplies support, and plans courses and activities that can lead to success in these areas. Interested students can contact the office to inquire about opportunities and strategies. Often faculty will nominate candidates who have been performing at a high level academically and displaying other qualities through leadership and community service. Early identification of freshmen and sophomores is especially important in order for the student to gain the most from these programs.

2. Undergraduate Research

Additionally, as an incentive for the kinds of students who are considered OSU’s best and brightest, the Lew Wentz Foundation and generous donors provide substantial private funding to OSU for several scholarship programs that are managed in this office. The programs include:

- Wentz Research Grant - an opportunity for undergraduates to plan and perform high-level research under the direction of a faculty mentor ($4,500 each)
- Wentz Leadership Award – traditional scholarships based on academic excellence and well-rounded campus activities ($2,750 each)
- Wentz Non-Traditional and Transitional Student Text Book Award - full-time or part-time (up to $1,500)

Freshman Research Scholars Program - whereby top entering students can begin their careers with a scholarship for orientation to research ($1,000 each).

OSU Journal of Undergraduate Research - a new opportunity for students to share their academic accomplishments, whereby articles by students are reviewed by a faculty editorial board for selective print and digital publication.

The OSU Undergraduate Research Network - an online resource that allows faculty to invite undergraduate collaborators and affords students the opportunity to identify research experiences that fit their interests and abilities for valuable interactions over long and short-term projects.

Undergraduate Research Scholar Transcript Designation - Thanks to opportunities in undergraduate research at OSU, those receiving degrees can qualify for ‘undergraduate research scholar designation’ on the transcript, a valuable achievement. To be considered, the student must:

- For a minimum of two semesters, be engaged in and contribute substantively to research or creative inquiry with a faculty mentor and/or faculty-led team;
- Present his or her research or creativity project at a state, regional, or national conference or juried artistic venues such as art exhibitions, concerts, or festivals;
- Publish his or her work or a manuscript related to the creativity product in a refereed research or professional journal (or have it accepted for publication). Applicants should apply through the Henry Bellmon Office of Scholar Development and Undergraduate Research at least six weeks before the end of their studies at OSU, and a committee appointed by the Faculty Council will examine the materials and determine whether or not the candidate will be approved and recognized.

3. International Experience

This office organizes a large number of international programs for undergraduate students called “Scholar Abroad.” The flagship program, a two-week course at the University of Cambridge in the UK has been held for over ten years each July. In addition, annual programs to diverse geographic locations covering a range of academic topics are held throughout the year. Admission to programs is competitive and partial scholarships are awarded to all participants.

4. Individual and Institutional Recognition

This office strives to promote scholarship and undergraduate research at the highest level at OSU through the formal recognition of both individual students and faculty, as well as through the promotion of the University as a whole. Visit the Halligan Hall of Scholars in the Student Union atrium for more information.

For further information on all programs, please contact the office at 405.744.7313 or visit www.okstate.edu/scholars.
Special Academic Services, Programs, and Facilities

Learning and Student Success Opportunity Center
Missy Wikle—Director of First Year Experience

The Learning and Student Success Opportunity (LASSO) Center provides academic advising and a variety of enrollment services to any student needing assistance and to various groups of students. Students advised by the LASSO Center include those admitted to OSU through the Alternative Admission Program, students regularly admitted by the Academic Review Committee, probationary students and those unable to declare their major, undecided students, students who wish to explore a Bachelor of University Studies degree, and concurrent high school students. The LASSO Center also provides free tutoring and success coaches to all students across campus. The overall goal of the LASSO Center is to retain students by providing personal attention and assistance as they adjust to OSU and explore their academic options. Students may contact the LASSO Center office at 405.744.5333 in 214 Student Union, or visit the website at lasso.okstate.edu for more information.

The following programs are offered at the LASSO Center:

Freshman Programs.

- Students who are undecided primarily those with interests spanning more than one academic college, are advised through the LASSO Center.
- The Academic Review Committee (ARC) looks holistically at freshman applicants and bases full admission on their accomplishments, experiences, and special talents, as well as their GPA’s, test scores, and class rank. Information is gathered from each student’s admission application, which also includes a series of questions used to determine their creativity and innovative spirit.
- The Alternative admission Program, outlined by State Regents’ Policy, allows approximately eight percent of OSU’s entering freshman class to be admitted without meeting all of the initial admission requirements. The LASSO Center freshmen enroll in a first semester freshman orientation class (UNIV 1111) to help them adjust to the demands of college life, learn how to become academically successful, explore various major options, and to make them aware of university rules and regulations. This class is taught by LASSO Center advisers and select members of the University community in conjunction with the LASSO Center’s Student Academic Mentor Program. The LASSO Center also strives to promote retention and academic success by offering individualized academic advising tailored to students’ needs, as well as by encouraging all OSU students to take advantage of the free tutoring and success coaches available through the office. Academic advisers in the LASSO Center enforce the required remediation of academic skills deficiencies, based on ACT area scores below a 19. After remediating deficiencies and completing one semester with a 3.0 GPA or higher or two semesters with a minimum 2.00 GPA, students may generally transfer to their academic college of choice, depending on their college and department’s individual GPA and course requirements.

University Academic Assessment.
The University Academic Assessment Program (UAAP) is designed for students who have experienced academic difficulty at the college level, including:

- students who are placed on academic probation;
- freshmen on academic notice;
- transfer students admitted on probation;
- students who are in good academic standing, according to State Regents’ policy, but are ineligible for admission to their desired college or major;
- students who left OSU while on probation or suspension and have stayed out of college for a minimum of one regular semester, and who are readmitted to OSU based on a demonstrated potential for success.

Transfer Probation. A select group of transfer students are advised to OSU with below the minimum hours/gpa requirements by a joint decision of their college of choice and the LASSO Center. These students are on probation and will be allowed to continue at OSU only if their semester gpa is a 2.0 or greater or they maintain a graduation/retention gpa above the minimum standards. These students include:

- students admitted with 0-60 hours attempted with less than a 2.25 GPA;
- students admitted with more than 61 hours attempted with below a 2.0 GPA; and
- students who have earned less than 24 credit hours and were not admissible from high school.

In conjunction with hands-on academic advising, the LASSO Center advisers also assist both Academic Assessment and Transfer Probation students in developing a realistic plan of study through graduation. They inform students of important policies and requirements, such as the minimum grade-point averages required by the Oklahoma State Regents for Higher Education and by specific majors, as well as the repeat and reprieve options.

Transfer Student Resource Center. The LASSO Center sponsors two campus-wide organizations specifically for transfer students. The Transfer Student Organization (TSO) is open to all transfer students to provide a social network, and information about the resources available at OSU. The Tau Sigma National Honor Society recognizes academic excellence and is available to transfer students with 12 hours of 3.5 GPA or higher, earned in regularly graded course work during their first semester at OSU. For more information visit lasso.okstate.edu.

Bachelor of University Studies. Occasionally a student experiences great difficulty in finding a degree plan appropriate for his/her interests and career goals. In this case, an individual degree plan may be developed to meet State Regents’ and OSU’s degree requirements, including general education requirements. Additionally, departmental concentrations or minors must also be met. Academic advisers in the LASSO Center can be instrumental in helping draft the initial stages of such plans, which are then forwarded to the colleges for their approval.

Concurrent High School Admission. OSU provides the opportunity for high school students who meet the State Regents’ requirements (24 ACT or 3.0 GPA and upper 33% of class for seniors; 25 ACT or 3.5 GPA for juniors) to enroll concurrently in college-level courses. High school seniors participating in concurrent enrollment, who qualify as in-state residents, will have their tuition waived for up to six hours per semester, including the summer prior to their senior year, as well as a one-time-only fee waiver for their first course. Concurrently enrolled high school students must also meet the minimum ACT area score of 19 or above in those areas in which they wish to enroll, in accordance with State Regents’ requirements. LASSO Center academic advisers strive to actively communicate with these students to maintain their college GPA and to facilitate their transition to college while still in high school.

Student Academic Mentor Program. The Student Academic Mentor (SAM) Program is a free service that connects new LASSO Center freshmen with experienced OSU students in an effort to ease their transition to college, specifically through assisting in their UNIV 1111 Freshman Orientation course. *SAMS* are carefully selected from continuing students at OSU to help freshmen feel welcome and to assimilate them into campus life, socially as well as academically. For more information visit lasso.okstate.edu.

Success Coaches. The Success Coaches Program offers individualized attention to help students adjust to their new surroundings and develop skills necessary for academic success. Students may self-request a success coach or be identified by adviser recommendations. Coaches will help students develop time management and other skills relating to effective study methods and test preparation. Additional guidance may be provided to assist with developing relationships with professors, staff and other members of the OSU community.

LASSO Center Paul Milburn Tutoring Program. The LASSO Center Paul Milburn Tutoring Program is a free service offered for students campus-wide. Qualified tutors are available to students for individualized, one-on-one tutoring. This program is funded in part by OSU alum, Mr. Paul Milburn, who is dedicated to helping students succeed. Tutoring is available by appointment Monday through Friday, 8am to 5pm and variable weekend hours. Students may contact the LASSO Center tutoring office at 405.744.3309 in 019 Classroom Building to sign up and schedule appointments. Students may also sign up online at tutor.okstate.edu or visit lasso.okstate.edu for more information.

Academic Advising

Academic advising is a major function within the University and serves the student first and foremost. Advising assists students in developing their intellectual potential through effective use of all resources available at the University—academic, cultural and social. The role of the student's academic adviser is to (1) assist in educational planning, including clarification of career goals and educational goals, curriculum planning, and short-term course selection, (2) become aware of and make appropriate referrals to campus support services, (3) provide information to prospective majors, and (4) guide students in preparing major plans for graduating seniors and submit these to the respective college graduation certification office.

Advising is performed within each of the undergraduate colleges and in the LASSO Center. Each college structures its advising system based upon the college’s philosophy and perceived student needs. In general, the freshmen and undeclared students are advised through the college’s office of student academic services, while declared majors are advised in their major department. In the Division of Agricultural Sciences and Natural Resources, all students are advised by faculty members.
Each college has an office of student academic services to represent the dean in matters concerning undergraduate students. Students should contact their office of student academic services when questions arise regarding advising, academic programs and requirements, and academic support services.

The locations of the offices of student academic services are: Agricultural Sciences and Natural Resources, 136 Agricultural Hall Arts and Sciences, 213 Life Sciences East Education, 106 Willard Engineering, Architecture and Technology, 101 Engineering North Human Sciences, 101 Human Sciences Spears School of Business, 103 Business Building LASSO Center, 214 Student Union OSU-Tulsa Advising Services, 130 NCB

Students should keep in mind that while the university provides advising as a service and resource, the ultimate responsibility for identifying and completing degree requirements rests with the student.

University Assessment and Testing
Sarah Gardem, PhD—Director
The assessment program at OSU supports institutional, college, and program improvement efforts and provides public assurance of program quality and accountability by documenting progress toward meeting educational goals. Assessment involves collecting, reviewing and using information about students’ learning and development for the purpose of improving student achievement and educational programs. Assessment is an integral part of the institution’s commitment to sustain and enhance academic quality and students’ educational experiences.

The OSU Assessment and Academic Improvement Council (AAIC) guides the institution’s assessment effort. Membership of the AAIC consists of faculty from each college and representatives from the offices of Student Affairs, Institutional Research, Libraries, and student government. The AAIC supports assessment by providing funding and other resources to (1) measure the effectiveness of academic and student programs, (2) use the information provided by assessment to improve student learning and (3) determine the overall educational impact of the university experience on students.

Assessment activity at OSU, coordinated by the Office of University Assessment and Testing, includes four primary initiatives:

1. Entry-Level Assessment assists advisers and faculty in making placement decisions to provide the best chance of academic success.
2. General Education Assessment evaluates student achievement of institutionally recognized general education competencies, including communication, problem solving, diversity, and critical thinking skills.
3. Program Outcome Assessment evaluates achievement of learning goals in the major.
4. Student and Alumni Satisfaction Assessment evaluates students’ and alumni’s perceptions of academic and campus programs and services.

Results of these assessments provide information for improvement of programs and services, of students’ achievement of learning goals, and of students’ satisfaction with their educational experience.

In addition to the above assessment activities, the Office of University Assessment and Testing periodically administers national measures of student engagement and learning. Results from national measures of student engagement and learning are used for program and institutional improvement and for participation in accountability initiatives.

Many assessments within academic programs and the institution are conducted by evaluating samples of student work selected from course assignments. These assessments are conducted for institutional or program purposes and are not connected to grading in the course. Appropriate steps are taken to assure that confidentiality of students’ work is protected, including the removal of identifying information from samples before they are evaluated by faculty members. Results from placement testing will be periodically reviewed for accuracy of placement decisions and shared to inform placement practices at other institutions. Results will be kept strictly confidential and shared only in aggregate form.

The Office of University Assessment and Testing submits annual reports to the Oklahoma State Regents for Higher Education that summarize the assessments in the above areas. The learning goals, assessment methods used, student population involved, results, and uses of assessment data are reported for assessment in each initiative area, including separate outcome assessment reports prepared by each academic program.

The OSU Testing Center provides testing and evaluation support services for OSU students and faculty. The Testing Center administers exams for prospective students, including the ACT, the Residual ACT, SAT On-Campus, and the Test of English as a Foreign Language (TOEFL). College Level Examination Program (CLEP) exams are administered to current and prospective students who wish to earn college credit by ‘testing out’ of specific courses. The online OSU Math Placement Exam and COMPASS test packages are available to undergraduate students for course placement in reading, writing, and math courses. Exams offered at the Center include the Graduate Record Exam (GRE), Miller Analogies Test (MAT), Graduate Management Admission Test (GMAT), Law School Admission Test (LSAT), and the Pharmacy College Admission Test (PCAT).

OSU faculty-made course exams are sometimes administered by Testing Center staff as ‘make-up’ exams or to provide accommodations for students with disabilities. As determined by the Office of Student Disability Services, testing accommodations may include distraction-free testing room, extended testing time, adaptive technology, and/or trained staff to assist students requiring a reader or an amanuensis.

For further information visit the website at UAT.okstate.edu.

Special Programs

Correspondence Education
In order to provide higher education opportunities to underserved or restricted populations, OSU provides a variety of courses via correspondence education (CE) to individuals across the state, nation and world using various media and partnerships with academic units at OSU. Individuals enrolled in correspondence education courses would often otherwise be unable to access higher education due to work, family responsibilities, physical isolation or medical conditions that may preclude participation in regularly scheduled class meetings.

OSU offers approximately 100 CE courses for college credit and continuing education units (CEUs). For most CE courses, students may enroll at any time without being admitted to OSU and are allowed up to one year to complete course work. Courses may be print-based (traditional correspondence), web, DVD/video-assisted, telecourses or online courses.

For more information on correspondence education go to http://ce.okstate.edu or call 405.744.6390. For other distance learning courses at OSU, contact the O-Campus help line at 405.744.6786, email to ocampus@okstate.edu or visit ocampus.okstate.edu.

Early Childhood Education
Anne Siorek, PhD—Clinical Assistant Professor and Early Childhood Education Program Coordinator
Dianna Ross, MS—ECE Specialist and Director of the Cleo L. Craig Child Development Laboratory-RISE Program

The Department of Human Development and Family Science has a rich tradition of excellence in early childhood education.

There are two components that support the professional education of early childhood educators - the children’s program and the teacher preparation program.

The Child Development Laboratory—RISE Program (CDL—RISE) serves as a field placement for early childhood education majors. Equipped with observation booths, the CDL—RISE is also used as a site for observation and interpretation of human growth and development by students in courses across campus. Research on developmentally appropriate practice, children’s learning and development, and the preparation of teachers is conducted in the facility. The program provides the highest quality of early childhood education to children with developmental disabilities and their families by providing exemplary services based on recommended practices for young children with diverse abilities. The CDL—RISE program provides family-centered services designed to meet the individualized needs of all children and families; offers a blend of educational and therapy services within the context of a developmentally appropriate curriculum; and prepares children for their next educational environment.

The teacher preparation program offers undergraduate and graduate degrees with emphasis on Early Childhood Education. Students participate in a variety of field experiences at the Child Development Laboratory—RISE Program and partner public schools in surrounding rural, suburban and urban areas, where they are provided with the opportunity to make meaningful connections between course content and practical application.

English Language Institute

The English Language Institute (ELI) was established in 1970. ELI’s mission is to equip its students with the English proficiency, academic skills, and cultural knowledge necessary to gain entrance to and achieve success at Oklahoma State University, or any American institution of higher education. In addition, English language and culture programs can be tailored to meet the needs of educational institutions, businesses, and government sponsoring agencies.

Regularly enrolled OSU international students who feel a need for additional language study may enroll part-time in ELI as well.

Institute students, who may represent as many as 25 or 30 different countries in any given semester, range from recent high school graduates to career professionals returning to school for master’s or doctoral degrees. Assigned to one of five levels of instruction by means of a placement exam, all students spend a minimum of 20 hours per week in class. Classes offered include listening/speaking, reading, composition and grammar.

For more information, contact the English Language Institute, 367 Wes Watkins Center, 405.744.7519, e-mail to eli@okstate.edu or visit eli.okstate.edu.

2014-2015 University Catalog
Mathematics Learning Success Center

The Mathematics Learning Success Center (MLSC) is a support facility for undergraduate mathematics instruction at OSU. The MLSC offers free tutoring and computer-aided learning support for all lower-division math classes through Linear Algebra. These support services are integrated with mathematics course instruction to enhance student learning and success in lower-division mathematics courses. The Center also partners with the Stillwater Public Schools and the LASSO Center (visit lasso.okstate.edu) to provide outreach tutoring services. The MLSC is located on the 5th floor of the Edmon Low Library and is open to all students enrolled in math classes on a walk-in basis. For more information, visit math.okstate.edu/mlsc or call 405.744.5818.

National Student Exchange

The National Student Exchange enables OSU students to spend a semester or year at one of over 190 colleges in the United States, its territories of Puerto Rico and Guam, as well as in Canada. Depending on the host university chosen, students pay tuition and fees to OSU or resident tuition and fees to the host institution.

Through the National Student Exchange, students have access to designated study abroad programs offered by participating institutions across a wide range of disciplines. The National Student Exchange offers students in highly specialized programs to study away for a semester and still make progress towards graduation. It also provides students with meaningful cultural learning opportunities within the USA.

The NSE also enables students from member colleges and universities to attend OSU while paying their own university's tuition and fees or while paying OSU resident tuition rates. For additional information and application materials, visit studyabroad.okstate.edu, contact the Study Abroad/NSE Office, 242 Student Union or e-mail abroad@okstate.edu.

OSU Teach

The OSU Teach program is designed to increase career options for majors in science and mathematics by preparing students as secondary teachers. OSU Teach offers four-year STEM degree options in biological science, chemistry, geology, mathematics, and physics, which lead to a B.S. in the selected discipline and teacher certification at the secondary level. OSU Teach is a collaboration between the College of Education and the College of Arts and Sciences. OSU Teach students begin supervised teaching in K-12 classrooms during their first semester in the program and continue these field experiences throughout their coursework, which culminates with apprentice teaching.

Pre-Law, Pre-Medicine and Other Pre-Professional Health Programs

Students planning to enter a professional school should visit with their advisers and consult professional school admission and course work requirements listed in the specific school catalog. Many professional schools select students with a variety of bachelor's degrees, although others may require a minimum core curriculum of varying length and grade-point average. Information about pre-professional programs is available in such areas as chiropractic medicine, clinical laboratory science, dental hygiene, dentistry, forensics, law, medicine, nursing, occupational therapy, optometry, osteopathic medicine, pharmacy, physical therapy, physicians associate, medical imaging and radiation sciences, and veterinary medicine. Some OSU degrees allow students to transfer back up to 30 hours of doctoral professional school coursework to complete the undergraduate degree. For more information, students should consult the pre-professional advisers in the Arts & Sciences Student Success Center, 213 Life Sciences East.

Psychological Services Center

Matt Alderson, Ph.D.—Assistant Professor and Director

The Psychological Services Center (PSC) is a collaboration between the College of Education and the College of Arts and Sciences. It is operated by the Department of Psychology through the College of Arts and Sciences. It is located in 118 North Murray on the OSU campus. The building is accessible to the handicapped.

Services are provided to children, adolescents and adults and are available to residents of Stillwater and the surrounding community as well as OSU students, faculty and staff. The Center offers a variety of psychological services such as but not limited to: individual, group, family, and marital therapy; parent counseling and training; treatment of phobias and anxiety disorders; relaxation training; assertiveness training; stress management; depression; intellectual and personality assessment; assessment of attention deficit and learning disorders; and school consultation.

The Center’s staff includes doctoral students in the Clinical Psychology training program, and is accredited by the American Psychological Association. The staff also includes supervising clinical psychologists from the Department of Psychology. Although the exact composition of the staff may change from year to year, the staff is generally composed of individuals from diverse ethnic and cultural backgrounds. There is a graduated fee structure based on one’s financial situation.

Ethics Center

Scott Gelfand, Ph.D.—Associate Professor and Director

The Ethics Center at Oklahoma State University is committed to promoting moral reflection and deliberation in personal, professional, community, and civic life. The Ethics Center does not seek to dictate values; rather, we attempt to meet our organizational commitments by organizing and promoting workshops, symposia, conferences, and other forums where those interested, including professional ethicists, faculty, students, and the general public, can study and discuss relevant topics. In addition, we will attempt to support research relating to applied and professional ethics. Finally, the Ethics Center will provide Oklahoma State University with a centralized office that students, faculty and the public can contact to find out what ethics classes and resources are available.

The Ethics Center is sponsored and operated by the Philosophy Department at Oklahoma State University, under the direction of Dr. Scott Gelfand, and overseen by a standing committee of faculty members having research and teaching interests in applied and professional ethics.

Gerontology Institute

Alex Bishop, PhD—Associate Professor and Gerontology Program Coordinator

The Gerontology Institute houses the Department of Human Development and Family Science. The Gerontology Institute operates in conjunction with an interdisciplinary gerontology program committed to promoting excellence in the study and understanding of aging across the life course through scientific research, education and service.

The Gerontology Institute was created in response to a widespread interest in course offerings in gerontology. Students can receive an MS in Human Development and Family Science with an option in gerontology. Undergraduates may earn a BS in Human Development and Family Science with an option in specialization in gerontology in the child and family services option. An undergraduate gerontology minor is also offered. Students wanting to attain an MS with an option in gerontology may complete the on-campus program in HDFS or the Great Plains Interactive Distance Education Alliance online gerontology program (Great Plains IDEA) at OSU. Students may also seek a graduate certificate in gerontology through the on-campus program in HDFS. For more information on the online gerontology program see human_sciences.okstate.edu/graduate.

The Gerontology Institute serves as a link between the University and the community in the field of aging. For more information, visit human_sciences.okstate.edu or e-mail humanciences.hdfs@okstate.edu.

The Institute for Teaching and Learning Excellence (ITLE)

Christine K. Ormsbee, Ph.D.—Assistant Provost and Director; A.J. and Susan Jacobs endowed Professor in Special Education

The Institute for Teaching and Learning Excellence (ITLE) is responsible for supporting faculty, instructors, and graduate teaching assistants in the design and delivery of high quality instruction using the most up-to-date and effective teaching tools including state-of-the-art instructional technologies. ITLE provides professional development on innovative pedagogies and technology integration and cooperates with campus departments on teaching and learning-related research projects. ITLE also produces video-based educational content from recording and editing classroom presentations for delivery via multiple media formats to distributing live, interactive classes world-wide from high-tech classrooms all over the campus. ITLE houses a high definition, broadcast-quality television production, editing, and transmission facility, which is used for everything from tape classroom presentations and producing high-quality animation/simulation segments to production of teleconferences, documentaries, video training presentations, and public service announcements for the University and for both government and commercial agencies. OSU is connected to the world from ITLE via a wide variety of media, including Internet and Satellite capabilities. Also, faculty can record presentations in a broadcast-quality studio or in a more relaxed office-like setting in a Camtasia/Webcam studio. ITLE also has a large multi-media conference room and takes control of classroom presentations for delivery via multiple media formats. ITLE is a collaboration between the College of Education and the College of Arts and Sciences. ITLE provides an outlet for student internships in art, production, and engineering fields, and ITLE has agreements with several departments across campus for credit-based experiences supervised by their full-time professional staff. In addition, ITLE provides part-time employment for some students each year in many of their departments. For more information, call 405.744.1000, or visit itle.okstate.edu.

Mathematics Learning Success Center

The Mathematics Learning Success Center (MLSC) is a support facility for undergraduate mathematics instruction at OSU. The MLSC offers free tutoring and computer-aided learning support for all lower-division math classes through Linear Algebra. These support services are integrated with mathematics course instruction to enhance student learning and success in lower-division mathematics courses. The Center also partners with the Stillwater Public Schools and the LASSO Center (visit lasso.okstate.edu) to provide outreach tutoring services. The MLSC is located on the 5th floor of the Edmon Low Library and is open to all students enrolled in math classes on a walk-in basis. For more information, visit math.okstate.edu/mlsc or call 405.744.5818.

National Student Exchange

The National Student Exchange enables OSU students to spend a semester or year at one of over 190 colleges in the United States, its territories of Puerto Rico and Guam, as well as in Canada. Depending on the host university chosen, students pay tuition and fees to OSU or resident tuition and fees to the host institution.

Through the National Student Exchange, students have access to designated study abroad programs offered by participating institutions across a wide range of disciplines. The National Student Exchange offers students in highly specialized programs to study away for a semester and still make progress towards graduation. It also provides students with meaningful cultural learning opportunities within the USA.

The NSE also enables students from member colleges and universities to attend OSU while paying their own university’s tuition and fees or while paying OSU resident tuition rates. For additional information and application materials, visit studyabroad.okstate.edu, contact the Study Abroad/NSE Office, 242 Student Union or e-mail abroad@okstate.edu.

OSU Teach

The OSU Teach program is designed to increase career options for majors in science and mathematics by preparing students as secondary teachers. OSU Teach offers four-year STEM degree options in biological science, chemistry, geology, mathematics, and physics, which lead to a B.S. in the selected discipline and teacher certification at the secondary level. OSU Teach is a collaboration between the College of Education and the College of Arts and Sciences. OSU Teach students begin supervised teaching in K-12 classrooms during their first semester in the program and continue these field experiences throughout their coursework, which culminates with apprentice teaching.

Pre-Law, Pre-Medicine and Other Pre-Professional Health Programs

Students planning to enter a professional school should visit with their advisers and consult professional school admission and course work requirements listed in the specific school catalog. Many professional schools select students with a variety of bachelor’s degrees, although others may require a minimum core curriculum of varying length and grade-point average. Information about pre-professional programs is available in such areas as chiropractic medicine, clinical laboratory science, dental hygiene, dentistry, forensics, law, medicine, nursing, occupational therapy, optometry, osteopathic medicine, pharmacy, physical therapy, physicians associate, medical imaging and radiation sciences, and veterinary medicine. Some OSU degrees allow students to transfer back up to 30 hours of doctoral professional school coursework to complete the undergraduate degree. For more information, students should consult the pre-professional advisers in the Arts & Sciences Student Success Center, 213 Life Sciences East.

Psychological Services Center

Matt Alderson, Ph.D.—Assistant Professor and Director

The Psychological Services Center (PSC) is a collaboration between the College of Education and the College of Arts and Sciences. It is operated by the Department of Psychology through the College of Arts and Sciences. It is located in 118 North Murray on the OSU campus. The building is accessible to the handicapped.

Services are provided to children, adolescents and adults and are available to residents of Stillwater and the surrounding community as well as OSU students, faculty and staff. The Center offers a variety of psychological services such as but not limited to: individual, group, family, and marital therapy; parent counseling and training; treatment of phobias and anxiety disorders; relaxation training; assertiveness training; stress management; depression; intellectual and personality assessment; assessment of attention deficit and learning disorders; and school consultation.

The Center’s staff includes doctoral students in the Clinical Psychology training program, and is accredited by the American Psychological Association. The staff also includes supervising clinical psychologists from the Department of Psychology. Although the exact composition of the staff may change from year to year, the staff is generally composed of individuals from diverse ethnic and cultural backgrounds. There is a graduated fee structure based on one’s financial situation.
Speech-Language Hearing Clinic
Cheryl L. Gilders, PhD—Associate Professor and Department Head
The OSU Speech-Language-Hearing Clinic provides comprehensive clinical services to the OSU/Stillwater and the Tulsa communities. We are dedicated to providing the highest standard of care in speech-language pathology and audiology. Nationally certified and state licensed clinical faculty supervise graduate student clinicians as they provide a wide range of diagnostic and therapy services, including early intervention. Treatment is provided for a variety of communication disorders, delays and/or differences across the lifespan including:
• Articulation disorders
• Language disorders
• Stuttering
• Autism
• Voice disorders
• Swallowing disorders
• Language, cognitive, and speech disorders resulting from stroke, head injury, dementia, and other neurological impairments
• Dialectical variations
• Hearing impairment, including early intervention
• Reading and writing disorders

The OSU Speech-Language-Hearing Clinic is located in Murray Hall on the OSU campus. Fees are charged for services with special rates provided for all OSU students, faculty, and staff. A sliding fee scale for services insures that individuals are served regardless of their ability to pay. To schedule an appointment please call 405.744.6021.

Study Abroad
OSU students can add an international dimension to their education through study abroad.

• Reciprocal Exchanges. Students may earn OSU credit through reciprocal exchanges in over 35 countries in Europe, Asia and Latin America and other regions. While participating in reciprocal exchange, students pay tuition and fees to OSU.
• OSU Faculty-led Programs. Students may also earn OSU credit by enrolling in short-term international courses offered by OSU college outreach units in countries such as Australia, England, France, Italy, Japan, Kenya, Mexico, Morocco, Brazil, and China.
• Affiliated/Approved Programs. Students may earn transfer credit through participation in pre-approved study abroad programs offered by other U.S. universities, university abroad program providers. Students on affiliated programs pay fees directly to the provider.
• Internship and Volunteer/Service Programs. Students may also participate in non-credit work, internships and volunteer/service learning opportunities abroad. These programs are offered as short-term experiences or semester long immersion, often combined with academic study in the host country.

Most exchanges and longer term study abroad programs require successful completion of at least 45 credit hours and good academic standing. Application deadlines for priority consideration for both fall and spring semester reciprocal exchanges, many fall semester study abroad programs and short-term international courses are at the end of January or the beginning of February. Deadlines for long-term spring study abroad programs are usually in early summer.

Financial assistance is available for many programs through scholarships as well as federal grants and loans. In many cases students may use federal financial aid to offset the cost of an academic program abroad. Students may apply for International Studies & Outreach Scholarships such as the Provost’s Study Abroad Scholarship or the Humphreys Study Abroad Scholarship through the Study Abroad Office. If their credit-bearing activities are abroad, there are two application cycles each year. IS&O Awards are based on financial need and award amounts vary. Other scholarships for study abroad are also available. Information on these national and local scholarships is available at studyabroad.okstate.edu or through the Study Abroad/NSSE office, 242 Student Union, 405.744.8569. OSU colleges also offer numerous scholarships for study abroad. For example, outstanding OSU undergraduates and graduates may apply for the Bailey Family Memorial Trust Scholarship for study abroad in the humanities. Information and applications are available at the College of Arts and Sciences Student Academic Services Office, 231 Life Sciences East. The Department of Foreign Languages and Literatures, 309 Gundersen Hall, offers several scholarships for language study abroad. Individual colleges offer scholarships for their national and faculty-led programs.

For more information on studying, working, teaching or volunteering abroad contact the Study Abroad/NSSE office, 242 Student Union, e-mail abroad@okstate.edu or visit the website studyabroad.okstate.edu.

The Center for Family Resilience (CFR)
Joseph G. Graywack, PhD—Professor, George Kaiser Family Foundation Endowed Chair in Family Resilience and Director
The Center for Family Resilience (CFR) is an initiative of Oklahoma State University’s College of Human Sciences, Cooperative Extension Services, and the OSU-Tulsa campus. The vision of the CFR is that every family be fully equipped to support members in achieving their full personal and social potential.

Located on the Tulsa Campus, the mission of the CFR is to build family resilience in Tulsa, Oklahoma and across the nation through innovative research on everyday issues affecting families, and by translating research results into effective programmatic or policy solutions. The CFR’s mission is implemented through three main programs. The community engagement program builds bridges among community agencies, family and social service providers, and CFR affiliate researchers. The research program coordinates the activities of affiliate researchers to create knowledge of individual and family resilience, and the factors shaping resilience. The translation and education program emphasizes dissemination of acquired knowledge and the transfer of that knowledge to everyday professional practice.

The Center for Family Services
Matt Brott, PhD—Associate Professor and Center for Family Services Director
Gina Churchill, PhD—Associate Professor and Marriage and Family Therapy Program Coordinator
The Center for Family Services is sponsored by the Department of Human Development and Family Science in the College of Human Sciences.

The Center’s dual mission is to provide high-quality, low-cost marital and family therapy services to the public and to provide a high-quality training environment for master’s degree students specializing in marriage and family therapy. Because the Center for Family Services is a training facility, graduate college students in marriage and family therapy conduct the majority of the therapy. While conducting therapy, therapists-in-training are under the direct supervision of clinical faculty members. The Center allows for video recording of sessions and for observation of sessions by clinical supervisors.

The Center for Family Services is open to individuals, couples or families seeking help with personal or relationship issues. Presenting issues may include marital concerns, family violence, adjustment to divorce or other life changing events, child behavior problems, parenting concerns, anxiety and depression, and family reunification. Fees are determined on a sliding fee scale based on income and family size.

Appointments are available on request. While appointments are available during daytime and evening hours, most appointments are scheduled on Wednesday and Thursday evenings.

The marriage and family therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy.

The Center for Hospitality and Tourism Research
Hailin Qu, PhD—Regents Professor, William E. Davis Distinguished Chair and Director; The OSU Center for Hospitality and Tourism Research
The OSU Center for Hospitality and Tourism Research (CHTR) in the School of Hotel and Restaurant Administration is dedicated to hospitality and tourism research and supports all areas of inquiry that directly and indirectly affect hospitality and tourism operations and management. The Center links cutting edge research with the critical needs and demands of the global hospitality and tourism industry. Through collaborative efforts between the university, the Oklahoma Tourism and Recreation Department and hospitality industry, the CHTR supports research, instruction, and extension/outreach activities essential to faculty scholarly development, student learning, industry practice and local community development. The CHTR positions the School of Hotel and Restaurant Administration as the premier provider of hospitality and tourism research excellence. For more information, visit humanities.okstate.edu/chtr/.

Writing Center
Rebecca Damron, PhD—Assistant Professor and Director
Since 1976, members of the Oklahoma State University community—students, faculty and staff—have found writing support from the consultants at the Oklahoma State University Writing Center. The OSU Writing Center aims to create well-developed and effective communicators regardless of skill level or background. Writing Center consultants help writers understand and practice many useful strategies—from brainstorming to drafting to editing techniques.

Appointments for the OSU Writing Center in 440 Student Union are made online at osuwrittingcenter.okstate.edu. The Writing Center provides drop-in consultations at the Eugene Love Library, the Spears School of Business Student Success Center, and the CASNR Student Success Center in Agricultural Hall. Check the Writing Center website for appointment times and availability.

Writers may also ask quick writing questions by calling the Writer’s Hotline at 405.744.6871, chatting with Pencil Pete on the Writing Center website, or directing questions to writingcenter.okstate.edu.
Special Facilities

Bartlett Center for the Visual Arts and the Gardiner Gallery

The Bartlett Center, formerly known as Gardiner Hall, was built in 1910 as a women’s residence hall and has since served as a classroom building for women’s physical education, speech, agriculture extension and the College of Business Administration. The building was originally named to recognize Maude Gardiner, founder of the University’s home economics program. Gardiner Hall was renamed the Bartlett Center in 1984, when Mr. and Mrs. F.M. “Pete” Bartlett made a generous gift to Oklahoma State University that was designated for renovation of the building then occupied by the Department of Art.

The Bartlett Center renovation has enhanced the capabilities for instruction in the visual arts at OSU. It has also provided an environment for activities that have brought regional and national recognition to the visual arts at OSU. The Department of Art has ten instruction studios in the Bartlett Center, including three computer laboratories, and a 100-seat auditorium for instruction in art history. This auditorium is equipped with state-of-the-art multimedia equipment.

Additional studios for sculpture, ceramics, printmaking and 3D design are in the Visual Arts Annex located on the northwest corner of campus. These new facilities provide students with well-equipped studio environments designed with health and safety as paramount.

Maude Gardiner continues to be recognized through the Gardiner Gallery, a significant part of the Bartlett Center serving both instructional and outreach needs of the Department of Art. Gallery programming provides exhibitions of regional and national importance to OSU and the community and opportunities for students to learn about installation and display of their work. Exhibitions have included the work of Manuel Neri, Deborah Butterfield, Lucas Samaras and traveling exhibitions such as “American Works on Paper: 100 years of American Art” and “Watercolor USA.” Faculty and student work is also exhibited on a regular basis. For current information about the Gardiner Gallery exhibitions and hours visit museum.okstate.edu

The Biology Learning Resources Center

The LRC, which serves as a study area for life science students, especially those taking the introductory biology course. Here students may use computer tutorials, review sample tests and papers, examine experiments, or meet with a Teaching Assistant or study group. The LRC is located on the third floor of Life Sciences West and is maintained by the Department of Zoology.

Collection of Vertebrates

The OSU Collection of Vertebrates (COV) is housed in Life Science West and maintained by the Department of Zoology. It includes specimens over 120 years old and consists of collections of fishes, amphibians, reptiles, birds, mammals, and frozen tissues. The Collection of Fishes maintains more than 30,000 lots of specimens, mostly from Oklahoma and other Plains states, but also includes one of the world’s largest collections of rare Neotropical fish. The Collection of Amphibians and Reptiles contains approximately 12,000 specimens and includes among the largest collections of the rare Oklahoma salamander and the grotto salamander. The Collection of birds houses 2,500 skins, are from Oklahoma and includes the oldest specimens that date from the 1880’s. The first mammal collection entered into the Collection date from 1924 and now includes more than 13,000 specimens from every county in Oklahoma, all 50 states, and 50 other countries; every continent except Antarctica. The Collection is one of the most taxonomically diverse collections at any university in the U.S. Among the most significant components of the Collection of Mammals are the more than 1,000 specimens from Ethiopia. All specimens are valuable for their use in teaching classrooms and for research.

Department of Wellness

The Department of Wellness is committed to creating a healthy campus culture for students and employees. The department seeks to promote healthy lifestyles and lifelong learning through the highest quality programs, services and facilities.

Department of Wellness Programs

- **Group Fitness** - offers a variety of fitness programs and classes in three locations with multiple formats at every skill level. There are more than 160 classes offered each week including yoga, samba, dance, spin, Pilates, Zumba, kickboxing, boxing, marathons, TRX, abs, boot camp and more. Classes are offered at the Colvin Recreation Center, Seretean Wellness Center and Student Union.
- **Intramural Sports** - serves more than 3,500 participants weekly in more than 50 sporting activities yearly. Intramural Sports at OSU promotes its rich tradition of friendly, competitive activities and serves as a rallying point for socialization, exercise and competition.
- **Outdoor Adventure** - provides opportunities for fun, adventure, education and excitement. Through a day trip and workshop programs Outdoor Adventure emphasizes environmental awareness, personal development, safety training, wilderness travel and fun. With a variety of regional and national trips as well as workshops at all skill levels, staff members strive to provide opportunities for the whole community. In conjunction with trips and workshops, Outdoor Adventure offers an extensive low and high elements challenge course at Camp Redlands and a state-of-the-art indoor climbing facility at the Colvin Recreation Center. To support courses and the local community, the outdoor equipment rental shop, next to the climbing wall, provides access to everything from tug-of-war ropes to sleeping bags.
- **Wellness Facilities** - the Department of Wellness Programs provides three basic opportunities to its clientele: instruction, recreation and competition. Clubs offer instruction and services as some are very social. Others compete throughout the region or country.
- **Sponsored Programs** - consist of federal, state and privately funded grants and contracts that serve the OSU community as well as fulfill the community outreach and extension components of Oklahoma State University’s land-grant mission. Oklahoma ABLE Tech is the statewide Assistive Technology Act Program, which connects Oklahomans with disabilities to assistive technology, or AT, through a variety of programs and services. ABLE Tech provides access to AT through a short-term equipment loan program, AT demonstration centers, re-utilization of AT through the Oklahoma Equipment Exchange, and low interest bank loans for AT. The Oklahoma Durable Medical Equipment Reuse Program is a partnership between the Oklahoma Health Care Authority and Oklahoma ABLE Tech to re-distribute valuable durable medical equipment to Oklahomans. The Special Education Resolution Center program, through a contract with the Oklahoma State Department of Education, manages the federal special education due process hearing and alternate dispute resolution programs for Oklahoma. The Department of Wellness Prevention Programs consists of seven grant-funded programs which include: regional prevention coordinators, Strategic Prevention Framework State Incentive Grants, Communities of Excellence in Tobacco Control programs and a federally funded Drug-Free Communities grant.

Wellness Facilities

- **Wellness Services** - Personal Training - exercise programs tailored by trainers to fit clients' needs. Trainers teach clients proper technique to perform exercises correctly and effectively.
- **Massage Therapy** - uses relaxing techniques to help the body transcend into an overall sense of well-being.
- **Nutrition Counseling** - examines individual eating habits and their relationships to health and disease. Nutrition counseling is available to OSU students, faculty and staff. A registered and licensed dietitian will assist in the development of a practical meal plan to meet individual dietary needs.
- **Cooking Classes** - teaches heart-healthy cooking classes. Cowboy Cooking School is a series of cooking demonstration classes offered each semester at the Seretean Wellness Center.
- **Health Risk Assessments** - screenings that provide an individualized health risk assessment designed for early detection of health problems.
- **Pilates Refomer Training** - impact workouts that develop core strength, improves performance and prevents injuries.
- **Employee Assistance Program** - is a confidential resource for faculty, staff and their families who are experiencing personal difficulties. Developed to improve well-being, the service is provided free to employees (75% FTE and above) and their dependents.

Wellness Facilities

- **Colvin Recreation Center** - offers 250,000 square feet of recreation options including: 10 basketball courts, 8 racquetball courts, rock climbing wall, indoor track, 2 cardio theater areas, a multipurpose gym, indoor pool, outdoor pool, 2 dance studios, 3 multipurpose fitness rooms, a personal training area, spin studio, selectorized weights, free weights, putting green and 2 golf simulators.
- **The Seretean Wellness Center** - features a newly renovated fitness center including a cardio/weight room, 2 group exercise studios, multipurpose room, personal training area, massage therapy, Pilates Refomer’s, health risk assessment room, demonstration kitchen, nutrition counseling, a lecture hall and sponsored Program testing and training center.
- **The Colvin Annex** - another great attribute to the Department of Wellness featuring 4 basketball/volleyball courts. With the inclusion of natural light and air conditioning, it serves as the perfect location for small conferences and community workshops.
- **Camp Redlands** - available through Outdoor Adventure. It is located 10 miles from the OSU campus featuring 12 cabins, a lodge, pavilion, swimming dock, picnic area, and a challenge course. This facility offers trainings and team building workshops to students, faculty, staff and general public.
- **The Department of Wellness** - aims to provide exciting and rewarding programs and services for OSU students and employees. For more information visit our website at http://wellness.okstate.edu/, like us on Facebook at facebook.com/OSUWELL and follow us on Twitter and Instagram @OSUWELL.
Ecotoxicology and Water Quality Research Laboratory (EWQRL)

The Ecotoxicology and Water Quality Research Laboratory (EWQRL) is located in Life Sciences East and is part of the Zoology Department at OSU. Established in the 1960s as the Reservoir Research Center, in 2001, the lab changed names to reflect not only our expertise in standardized aquatic toxicity testing but also additional research foci in aquatic ecosystem assessments. The EWQRL provides services to a number of companies and wastewater treatment facilities throughout Oklahoma, in the form of EPA standardized bioassays. In addition, the staff and students (both graduate and undergraduate) funded by the EWQRL, undertake aquatic monitoring projects in riversine, wetland and reservoir systems for both state and federal agencies. These projects include invertebrates, fish and plant surveys and identification, zebra mussel monitoring, wetland delineation and toxicity assessments. The labs facilities include a fathead minnow rearing room, temperature and light controlled environmental chambers for in-house cultures of aquatic toxicants (cladocerans, amphipods and midges) and standardized toxicity testing of client produced water, a wet chemistry laboratory, computer laboratory, and numerous compound and dissecting microscopes all with digital imaging capabilities. Sampling equipment for field surveys includes a boat, electroshockers, nets, drift fences and several field meters.

Engagement Skills Trainer (EST 2000)

The EST provides initial and sustainment marksmanship training, static unit collective gunnery and tactical training, and shoot/don’t shoot training. It supports the following three modes of training: marksmanship, squad/fire team collective and judgmental use of force. The system models M4/M16/A2 rifles and is deployable with its own system shelter. All EST training scenarios are U.S. Army Training and Doctrine Command (TRADOC) validated. Cadets at OSU will spend up to six to nine hours per semester using the EST, focused on grouping, zeroing, basic qualification, and advanced marksmanship techniques. The system presents the cutting edge of technology in marksmanship training across the globe.

Functional Design Research Laboratory

The Department of Design, Housing and Merchandising has a long history and national reputation for designing functional apparel and protective clothing. Equipment available in the Human Sciences building includes the following: AccuMark pattern design system (PDS); Pattern Technology – automated cutter, pattern input digitizer, AccuMark V-Stitcher 3-D pattern visualization software, a laminating heat press oven, Infinity plotter, and various other sewn product production and care equipment.

Herbarium

The OSU Herbarium houses the university’s collection of plant specimens. It is located in Life Sciences East, Room 012, and is maintained by the Department of Botany. The collection consists primarily of over 150,000 specimens of vascular and non-vascular plants that are dried, mounted on archival paper or placed in jackets and stored in cabinets. There are nearly 50,000 specimen herbarium sheets that document the flora of the state of Oklahoma, the second largest such collection in the world. The remaining specimens were collected throughout the world, with strong representation of the Great Plains region and Texas. A particularly significant collection of specimens was made through Mexico in the 1960s and 1970s by former curator, Dr. U.T. Waterfall. Other large collections represent the countries of Canada, Colombia, and Ethiopia. Data on these collections can be accessed on the internet through the Oklahoma Vascular Plant Database (OVPD: www.oklahomaplantdatabase.org); Global Plants (plants.jstor.org); and other repositories and aggregators. Over 225 species are taxonomic “types” that are the reference material that form the basis for scientific names of these plant species. The Herbarium is known by its Index Herbariorum code, OKLA. The collection is used extensively by OSU researchers, students, land managers, government agencies, and members of the general public interested in plant identification, plant distributions, and ecology. The Herbarium also provides specimen loans to researchers at accredited institutions around the world. Herbarium staff assist with identifications and on specimen based information on request; requests from for-profit interests may be charged for this service.

M. B. Seretean Center for the Performing Arts

The M.B. Seretean Center for the Performing Arts provides a home for the departments of Music and Theatre. Constructed in 1970 at a cost of three million dollars and named in honor of its principal benefactor, M.B. “Bud” Seretean, a 1947 OSU graduate, the Center is the focal point of all major theatrical and musical events on the OSU campus. The center’s 75,000 square feet include the 800-seat Concert Hall and the 600-seat Vivia Locke Theatre which attract a variety of fine arts activities such as ballet, concerts, mime, opera, plays, family and student recitals, and a host of summer conventions and camps.

In addition to the auditorium and theatre, the Seretean Center houses teaching studios for music and theatre, a variety of classrooms, a specially-designed choral room, a rehearsal hall for band and orchestra, the theatre scene shop, computer labs, and a well-equipped audio center, all designed to provide an excellent atmosphere in Oklahoma for the teaching of the fine arts.

Theatre.

Live theatre productions are an important part of the cultural life of the campus. The OSU Theatre Department produces six to eight plays each academic year from a wide variety of dramatic and musical theatre literature. Two separate production series are offered. Each year, three to four fully-mounted large-scale productions are presented in the 600 seat Vivia Locke Theatre. Two to four experimental productions, often student-directed and designed, are presented in the 100 seat Jerry L. Davis Studio Theatre. Each production’s cast and crew is comprised of theatre majors and minors as well as non-majors from across the campus. Auditions are open to all students on campus regardless of major.

OSU Libraries

The OSU Library system consists of the Edmond Low Library at the heart of campus and three specialized branch libraries (the Curriculum Material Library in Willard, the Architecture Library in the Architecture Building, and the Veterinary Medicine Library in McCrory Hall). The Edmon Low Library is open 121 hours per week and 24 hours a day during dead week and finals. The Library’s six floors offer individual study spaces designated as either silent (no talking) or quiet (talking softly permitted) as well as for groups to work together. There are 12 private group study rooms that can be reserved at the Circulation Desk. Desktop computers located on the first and fifth floors provide access to the Internet, MS Office, BOSS (a search system of all Library resources) and other electronic library resources. The Library also provides laptops, MacBooks, Microsoft Surfaces and ipads for check out; the entire Edmon Low Library has wireless Internet access.

Many Library resources are available remotely 24/7 via the Library’s website (www.library.okstate.edu). Here you may renew books you have checked out or determine whether a book you need is checked out by another person; search the A to Z listing of more than 200 specialized online databases; connect to many of our 13,000 online text journals; and access online course reserves. If there is an article or book chapter the Library owns only in paper, use the Document Delivery Service to request a link to a digitize copy. If you need an item not owned by the OSU Library, the Interlibrary Loan Service can secure it for you.

The Library offers assistance in person, by phone 405-744-9775 or text message 405-301-8102, via e-mail lib-dis@okstate.edu or via chat on the Library’s website. Throughout the semester, the Library offers free 30-minute tours and training sessions. Students can also enroll in LBSC 1011, a one hour credit course on using Library resources.

For the latest Library news, events and service updates, find OKStateLibrary on Facebook, Twitter or OSState.TV.

Government Documents

The OSU Library has an outstanding collection of current and historic government publications, as well as publications of the state of Oklahoma, foreign governments, and international organizations providing information relevant to all majors.

Oklahoma Oral History Research Program

The Oklahoma Oral History Research Program promotes and facilitates the collection, preservation and analysis of interview-based research and related audio projects by educating students, faculty and community members in the methods, protocols and professional and ethical standards of oral history.

Special Collections University Archives

OSU’s special collections focus is on the history of OSU, its employees and graduates. Rare books, manuscripts, photographs and research material related to Oklahoma women, history, politics, business and natural resources have also been acquired. The University Archives is the depository for all academic and administrative documents, official records and other materials related to the management, operations and mission of Oklahoma State University.

The Postal Plaza Gallery

The Postal Plaza Gallery in downtown Stillwater, opened in January 2014, serves as a new home to Oklahoma State University’s permanent collection of art and as a teaching museum for students, providing hands on opportunities to learn while connecting students with a broader arts community beyond the OSU campus. The OSU Museum of Art works closely with the Department of Art, Graphic Design, and Art History by supporting programming at the Gardiner Gallery on the OSU campus.

Oklahoma State University began collecting art in the 1930’s and opening of OSU’s first dedicated museum facility at the Postal Plaza Gallery is a significant moment. As a university art museum, teaching is the heart of our mission. As the mission states, the museum is, “passionately committed to providing opportunities for students to engage in art through exhibitions and programs that enhance the academic mission of the university. In its galleries on campus and in the community, the OSU Museum of Art seeks to engage audiences with dynamic programs and access to a growing collection of original art that serves as a resource for the study of art and its history by the campus, community, and the people of Oklahoma.”

2014-2015 University Catalog
Student Union

Dating back to 1615, college unions have always been thought of as “places where all may meet on common ground.” The OSU Student Union certainly is no exception to this tradition as it has been serving the university community since 1950 and has become the place to be on the OSU campus. With a facility consisting of more than 630,000 square feet, it stands as the most comprehensive union in the world. It provides the university with such services as the University Store (textbooks, OSU merchandise and technology center), retail shops, banking services, a campus post office, restaurants, lounges, meeting rooms and an 81-room hotel.

The primary purpose of the OSU Student Union is to be a comprehensive system of people, services, programs and facilities that enrich the intellectual, cultural and social well-being of the OSU student.

In the Student Union is a full Campus Life facility housing the university’s more than 450 campus organizations. Many activities such as movies, late night events and speakers are provided for students by the Union’s student programming organization, the Student Union Activities Board also located in the Union.

Through its meeting and conference center, the Student Union hosts many conferences throughout the year. The variety of meeting rooms located throughout the building are also available to OSU student organizations and faculty meetings, typically at no charge.

The University Store generates $17 million of the Student Union’s almost $22 million operating budget. This money supports the Union’s operations, as well as many Campus Life programs and services, like Camp Cowboy and Late Night Cafe, which have impacted thousands of OSU students throughout the years.

Now is an exciting time for the OSU Student Union as it recently completed a $63 million major renovation. The project, which was officially endorsed by the students through their increased student fee gift, allowed the university to revitalize an iconic campus building so it can better meet contemporary student needs while maintaining the significance of its history, legacy and commitment to student success. The Union was also recently named the “No. 1 Most Amazing Student Union” by bestcollegereviews.org.

More information about the Student Union and its offerings can be found at union.okstate.edu.

The Cleo L. Craig Child Development Laboratory-RISE

The Department of Human Development and Family Science has a rich tradition of excellence in early childhood education. The Child Development Lab-Rise Program was established in 1924 with the inclusion of RISE School of Stillwater in 2010. The laboratory presently resides in a facility opened in 1983 and renovated in 2010. The program serves as a field placement for early childhood education majors. Equipped with observation booths, the Child Development Laboratory-RISE is also used as a site for observation and interpretation of human growth and development by students in courses throughout the university.

Research on developmentally appropriate practice, children’s learning and development, and the preparation of teachers is conducted in the facility. The Child Development Laboratory-RISE is licensed by the Department of Human Services and is accredited by the National Association for the Education of Young Children. The program offers planned learning activities that are developmentally appropriate and designed to model best developmental practices; frequent and positive interactions between children and students; nutritious meals and snacks; regular communication with parents; positive guidance techniques; high teacher-child ratios; experienced Early Childhood Education degreed staff; and on-going systematic programing.

The program provides the highest quality of early childhood education to children with and without developmental disabilities by providing exemplary services based on recommended practices to young children with diverse abilities and their families. The Child Development Laboratory-RISE provides family-centered services designed to meet the individualized needs of all children and families; offers a blend of educational and therapy services within the context of a developmentally appropriate curriculum; and prepares children for their next educational environment.

Subject to availability, families have the opportunity to enroll in this model early childhood program. Children enrolled in the program range in age from 12 months through six years of age.

The Product Design and Testing Laboratory

The Department of Design, Housing and Merchandising Product Design and Testing Laboratory offers specialized equipment to facilitate product development and testing in four broad areas: textile testing, anthropometric and biomechanical testing, fire and wear testing and human physiology testing. This university resource attracts a broad set of collaborators and users (both on and off campus). Established in 2007, the laboratory is the culmination of award-winning protective apparel research on body armor and micro-climate cooling systems.

Lab equipment includes: sweating guarded hot plate, Kawabata Evaluation System (KES), thickness gauges, FrazierTM FAP-F2, spectrophotometer, 3-D body scanner, 3-D motion capture system, surface electromyography devices, a wireless sensor system, and more.

The School of Hotel and Restaurant Administration

Experiential Learning Laboratories

Taylor’s Dining Room is an experiential laboratory that emphasizes quality food service utilizing a thoughtfully prepared menu featuring seasonal ingredients.

Students develop skills in food preparation, service techniques, dining room management and profitability. Focus is on professionalism, quality management and guest satisfaction.

Westside Café is a quick service cyber café concept with an upbeat and dynamic atmosphere. Students progress through staged learning in this lab developing the skills to assume management responsibility.

The Atherton Hotel, built in 1950 as the Student Union Hotel, has been an historical place for alumni, families, and visitors to gather. The boutique hotel is well known for its cozy down bedding and strong customer service. In 2001 the hotel became The Atherton Hotel at OSU, a “living laboratory” for the education and experience of future hospitality professionals. The Atherton was selected for membership in Historic Hotels of America in 2004.
Student Services

Career Services
Pamela Ehlers, EdD—Director

Career Services offers career-related assistance and educational programming to OSU students and alumni through a network of career services offices located in academic colleges as well as the OSU Student Union.

Staff members assist students in exploring careers and academic majors, learning how to obtain part-time jobs through résumé assistance, part-time online job listings, and specialized annual career fairs, including the Part-Time and Volunteer Fair and the Summer Camp Fair. Additionally, students receive support for career planning, job shadowing, leadership, and volunteer experiences to build the skills necessary for future employment.

Career developmental activities, including help in finding an academic major, are facilitated by Career Consultants available in every career services office. Career Consultants assist students through the use of career assessments, one-on-one appointments to discuss assessment results, and academic and career major research. Students can also explore internships, full-time employment, and graduate education experiences. Staff members can assist students and alumni by offering individual consultations, job search exploration assistance, career development workshops, mock interviews, and specialized programming.

Electronic job search assistance is also available through the departmental website HireOSUgrads.com. This site allows students and alumni to access the Hire System, where employers interested in OSU students and graduates post opportunities for full-time jobs, internships, federal work-study positions, part-time jobs, and co-ops. On-campus interviews and employer information session details are also available on the Hire System. Additionally, job search and preparation tools such as InterviewStream, The Big Guide to Living and Working Overseas, myvisajobs.com, and many other job search resources and assessments are available on HireOSUgrads.com.

Details on every step of your decision-making process, from beginning the search through graduate school selection or salary negotiation are available on the website.

Campus wide career fairs are held at least once each semester for students and alumni. These events are excellent opportunities to network with potential employers and learn about specific career options regarding full-time positions, internships, co-ops, and graduate schools. To prepare for the career fairs, please stop by a Career Services office, visit with a Career Consultant and pick up your free résumé paper and thank you notes. Portfolios and business cards are also available at a discount for student use at the Career Services office located at 360 Student Union.

Information Technology
Darlene Hightower—Chief Information Officer

Information Technology provides innovative, reliable, and integrated technology solutions for Oklahoma State University students and staff. IT provides administrative and academic computing services and support as well as telecommunications services for OSU. Services include network and communications infrastructure, software development, enterprise application systems, system management, data management services, database management, technology lab services, identity/access management services, email services, security services, publications, desktop computing support, and a comprehensive Helpdesk.

IT Helpdesk and Hours. The IT Helpdesk provides diagnostic support and assistance by phone, e-mail, or in person. The Helpdesk office is located in 113 Math Sciences and can be reached at helpdesk@okstate.edu or 405.744.HELP (4357). Visit 4help.okstate.edu for more Helpdesk information.

Helpdesk hours are:
- Weekday hours (fall/spring semester): M-F 7:00 am-10:00 pm
- Weekend hours (summer semester): Saturday 10:00 am - 5:00 pm
- Sunday 2:00 pm-11:00 pm

Access to IT Services. Undergraduate students applying to OSU and graduated students admitted to OSU are granted an Orange Key (O-Key) username and password that allows them access to IT services, including a life-long e-mail address. Visit IT.okstate.edu/services/okey/ for information on how to activate your O-Key account. After enrolling, students are issued an OSU ID card that includes their photo and campus-wide ID (CWD) number. Students can obtain an ID card at the ID Card Production office in 113 Math Sciences, Monday-Friday from 8:00 a.m.-5:00 p.m.

Student Technology Resources. After enrolling at OSU, students receive access to network and computer labs, print services, 250Mb network data storage, software downloads, and electronic mail. Visit www.okstate.edu/email for details on student email accounts. Each student will receive services with Microsoft and Google for data storage, electronic mail, and calendaring.

An extensive data communications network provides interfaces via OneNet to the Internet, Internet 2, and the National LambdaRail (NLR). OSU uses a campus wide Ethernet-based network to provide technology services to students. The campus has more than 40,000 10/100 megabits per second network drops and is continually expanding its WiFi coverage. Both the wired and wireless networks provide fast connectivity to university services and the Internet. Visit www.it.okstate.edu/students/wireless for more information about WiFi coverage.

Campus Computer Labs. The OSU campus has four IT-managed computer labs at the following locations: Classroom Building 4th Floor, Bennett Hall B19, Kerr-Drummond Mezzanine, and Math Sciences 108. Campus labs provide Microsoft Office Suite, SAS, SPSS, and Adobe Acrobat reader, as well as Internet access. Other college-specific software also can be found in these labs. Visit the “Campus Computer Labs” section of the IT Resource Center or 4help.okstate.edu for a complete listing of available software in the campus computer labs. While the majority of the computers in these labs are Intel, each lab includes Macintosh computers as well as numerous printers and scanners available for student use. The Macintosh computers are fully functional, fully integrated into the OSU network, and are capable of accessing Online Classroom and other educational websites. All labs have wheelchair access and feature adaptive technology software.

Students also have access to virtual computer labs created for students to access while off campus or in their residence halls. Students can login to these virtual labs from any computer with an Internet connection using their O-Key username and password. Visit the “virtual computer labs” section of the IT Resource Center or 4help.okstate.edu for instructions on how to login to the virtual lab using Windows, Mac, or Linux operating systems.

Remote print stations are located in Residential Life, IT-managed computer labs, and the Student Union. For a complete list of the locations and instructions, please visit 4help.okstate.edu.

Student Technology Products. Students are eligible for discounts on selected products and services through OSU. Please visit IT.okstate.edu/students/ for information on how to obtain the OSU discount on hardware and software, as well as information on discounted cellular plans. Microsoft Security Essentials is the recommended virus protection software for Windows. Please visit windows.microsoft.com/en-US/windows/products/security-essentials for a copy of this software. Additional software is available to download at the Software Distribution Center website at app.it.okstate.edu/sdc/ through OSU’s Microsoft Campus Agreement. Directions for software pick-up or delivery also are available on the software distribution center website.

Additional Information. Please visit 4help.okstate.edu, for a complete listing of IT resources and for additional information about IT at OSU.

Parking and Transportation Services
Steve Spradling—Director of Parking and Transportation Services
Jan Herandez—Manager, Parking
Tom Duncan—Manager, Transportation
Ja Reisngard—Shuttle Coordinator

Vehicle Registration and Parking Regulations. Any motor vehicle parked on University property between the hours of 5:00 am and 5:00 pm, Monday through Friday, must display a valid OSU paid parking permit or pass. The color and type of permit indicates the area where the vehicle may be parked. Use of a motor vehicle on University property is a privilege, not a right, and is made available only under the policies established in the University Parking and Traffic Regulations manual currently in effect. Any vehicle driven or parked on the campus of the University by an OSU student or employee should be registered with the OSU Parking Services.

The purpose of these regulations is to expedite the safe and orderly conduct of University business and to provide parking facilities in support of that function within the limits of available spaces. Purchase your permit online at www.parking.okstate.edu: new faculty or staff, vendor, handicap, university vehicle, carpooling, retiree, construction, registration or special permits must be purchased in person at the Parking and Transportation Services office. A copy of the OSU Parking Rules and Regulations booklet is available from the Parking Services office, 1006 West Hall of Fame on the corner of Monroe and Hall of Fame Avenues.

Bicycle Registration with the OSU Department of Parking and Transportation Services is advantageous in the event the bicycle is stolen or lost. When bicycles are recovered by the department they are checked against bicycle serial numbers maintained in the registration files for return of the bicycle to the rightful owner. Permits are free of charge and can be obtained in-house or online (shipping fees will apply). Prior to obtaining a permit you are required to review safety guidelines before registering your bicycle. You can view the tutorial, and take the quiz online at http://Stillwater.sharepoint.okstate.edu/Training/BicycleSafety/default.aspx.
OrangeRide Bicycle Rental and Repair. OrangeRide is a bicycle rental program being offered to promote affordable and convenient transportation to the campus and Stillwater community. The shop, which is located on the west end of the Multi-Modal Terminal, will be open Monday-Friday 8am-5pm offering rentals on a daily basis or by semester basis. In addition to bicycle rental, the shop will also provide basic bicycle repair for personally owned bicycles. (405) 744-BIKE www.facebook.com/OSUorangerie.

Hertz on Demand. Hertz on Demand is an hourly car rental program, and is available to students or employees. Vehicles can be rented on an hourly or daily basis. For more information and to sign up for the service, visit www.hertzondemand.com.

Transit Services. The BUS is the campus and community transit service operated by the Department of Parking and Transportation Services. The BUS offers fixed route transit and on-demand paratransit service year-round. Bus transportation is available from 6:30 am until 10:30 pm Monday through Friday during the school year and 6:30 am until 7:00 pm during the summer. Route and time information are available at the Parking and Transit Services office or online at www.transit.okstate.edu.

The BUS also offers an online bus tracking system at www.thebus.okstate.edu where you can select a route and identify where the buses are on route in relation to your location, available on your desktop or mobile device (Android and iPhone apps).

Tulsa Shuttle, BOB, OSU’s Big Orange Bus, is a shuttle service between the Stillwater and Tulsa campuses. There are nine trips daily from each campus Monday - Thursday; seven trips on Friday. It is open to current students, staff and faculty and is now open to the public. The cost is $7.50 one way for students; and $13 one way for faculty/staff public. Reservations can be made in Stillwater at the Shuttle office in 1006 West Hall of Fame, at the corner of Hall of Fame and Monroe. Monday - Friday 7:30 am to 5:00 pm, or in Tulsa at the North Hall Information Center, Monday - Thursday from 7:00 am to 6:00 pm and Friday from 7:00 am to 5:00 pm. In Stillwater, call 405.744.7100 and in Tulsa call 918.594.8332 or visit www.parking.okstate.edu/BOB_schedules.aspx.

Jefferson Lines connects to thousands of destinations in the USA, Canada and Mexico. Tickets may be purchased at the Multimodal Transportation Terminal at 1006 West Hall of Fame, by phone at 405.744.7100 or online at www.jeffersonlines.com.

Housing and Residential Life

Matthew S. Brown—Director of Residential Life
Shannon Baughman—Associate Director of Operations, Conferences, Facilities, and Marketing
Delton Gordon—Assistant Director, Residential Life
Jon Hunt—Assistant Director, Administrative & Business Services
Tanya Massey—Assistant Director, Programs and Development
Vacant—Assistant Director, Residential Life
Vacant—Assistant Director, Family and Graduate Student Housing

The Department of Housing and Residential Life offers 26 residence halls, seven family-first floor communities, several special options, and countless leadership activities for students. Students who live on campus graduate sooner and maintain higher grades than their off-campus counterparts. More than 500 students are involved in planning and leading educational, recreational, and social activities within the halls.

Freshmen are required to live in campus approved housing. Students are expected to comply with this University policy. Students who are required to live on campus will automatically be billed and assigned if they fail to submit a housing contract. Subject to verification and authorization by the university, students will be given permission to live off campus provided any one of the exemption categories listed is satisfied:

• A student is residing and continues to reside in the established primary residence of her/his parents (or legal guardian) if it is within a 30-mile radius of OSU. The parents must have established their primary residency at least six months prior to the request for an exemption. Legal guardianship must have been established by the court of law at least one year prior to a request for an exemption in order to be considered. Click here to download a copy of the Sworn Statement of Commuter Status Form;

• A student is married or has dependent children living with the student;

• A student is 21 years of age or older on or before the first day of classes of the initial semester of enrollment;

• A student has successfully completed 28 or more hours of academic credit prior to the student’s enrollment or re-enrollment. Credit earned by exam (Advanced Placement, CLEP, ACT, SAT) and hours received from concurrent high school credit are not considered.

• A student has served in active military service, as verified by a discharge certificate (DD214);

• A student presents sufficient evidence of an extreme financial hardship condition based on similar guidelines as for Financial Aid. Click here to download a copy of the Medical Hardship form;

• A student presents sufficient evidence of an extreme financial hardship condition based on similar guidelines as for Financial Aid. Click here to download a copy of the Financial Hardship form.

• A student presents sufficient and satisfactory evidence of extreme or unusual hardship that will be intensified by living in the residence halls. All accommodations are rented on a contract date priority basis. While there is no deadline to apply for housing, prospective students are encouraged to return their applications and contracts at least nine months before the desired occupancy. This will improve the chances of receiving the preferred on-campus housing location.

Traditional Halls, Suites and Apartments. OSU offers three living styles to choose from when picking a place to live: traditional halls, suites, and apartments. OSU offers a variety of living accommodations. Traditional residence halls include Drummond, Iba, Parker, Stout, and Wentz Halls. Six suite buildings make up the area referred to as The Village. Student units are also offered in Bennett, Allen, Booker, Jones, Patchin, Stitchcomb, and Zink Halls. Apartments can be found in Bost, Davis, Kamm, Morsanti-Smith, Peterson-Friend, Stittington, and Young Halls.

All halls are open continuously throughout the academic year. Year round housing (9-month academic contract plus a summer contract) is available in each type of housing offered.

Studies show that living on campus can be more affordable than living off campus. Some students save as much as $500 per academic year by living on campus. Just one bill pays for a student’s rent, meal plan, and all utilities including cable TV and Internet connection. Rates rarely increase during the academic year, even when roommates(move(s) out.

Students are offered several lifestyle options. Kerr Hall houses men only, while Drummond Hall houses women only. All other halls are co-ed. Residential Life offers numerous Living Learning Communities for students to consider when choosing their housing options. The LLCs are developed as partnerships to provide housing, programming, and faculty interactions based on major or area of interest. A complete list of all Living Learning Communities may be found at www.reslife.okstate.edu.

In every residence hall there is a well-trained, professional staff member to coordinate the day-to-day operations of the building, as well as staff whose primary function is to see that students benefit educationally from their residential living experience. Each floor or wing has a live-in staff member, the Resident Advisor, who is responsible for assisting and guiding the residents. Resident staff members are undergraduate students who are trained in all aspects of residential area living with the experience and knowledge to answer questions and act as an adviser for student governments and programs.

Family and Graduate Student Housing

More than 700 apartments are available to serve students in the following priority: families, single graduate students, and single, upper class, undergraduate students. Priority is given to those single students who have lived in the residence halls.

Most apartments are two-bedroom units with optional furnishings. The Morrison Neighborhood features some three-bedroom units. The apartments have sidewalks, off-street parking, play areas, and two community laundry facilities. Residents enrolled in the Morrison Neighborhood have full-size washers and dryers in their apartment units.

School bus transportation is provided to the Stillwater High, Junior High, and Middle schools, and to Westwood and Will Rogers elementary schools.

The Family Resource Center, located in the Family and Graduate Student Housing area, offers a variety of programs to meet the needs of the residents. These programs vary depending upon the needs of the clientele. Typical programs include: English as a Second Language class (ESL), after-school programs, children’s programs, as well as cultural and social gatherings.

Family and Graduate Student Housing provide an on-site staff member, an Apartment Assistant (AA), who is readily available to the residents. Each AA has responsibility for about 90 apartments. The AA’s duties include helping residents resolve conflicts, meet neighbors and find appropriate community services. They also provide information about the facilities and the University, and provide referrals to appropriate University offices for residents’ needs. The AA can be a very helpful person for all residents.

To read more about the types of housing offered, compare options and rental rates, and take a 360 degree virtual tour, please visit the website at www.reslife.okstate.edu. For further information or questions, please contact the OSU Housing and Residential Life Office, Iba Hall, Stillwater, OK 74078, 405.744.5992.

Mobility Impaired Student Housing

All residence halls and many Family and Graduate Student apartments offer some housing for students who have impaired mobility. Upon notification, the Department of Housing Residential Life routinely modifies rooms and apartments to meet an individual’s special needs. This modification may take several months, so advance notification is critical.

Residence Hall Student Organizations

Residence halls are popular places to live on the OSU campus. The housing and food service programs have a proud tradition of excellence recognized
nationwide. Much of the success of the residence halls is the strong and vital student government system consisting of floor governments, councils for each hall or complex and the Residence Halls Association, which represents all halls on campus.

All residence halls on campus combine to form the Residence Halls Association (RHA). The Residence Halls Association acts as the voice of residential area students to the University administration concerning policies and regulations, and coordinates campus-wide activities for the enrichment of residential area living. Each hall has its own elected officers and constitution, and is a part of the RHA system of representative government. There are numerous opportunities for involvement in the halls, such as floor officer, social committees, food committees, and sports and athletic activities.

The Residential Leadership Certification program is designed to provide incoming students the opportunity to learn about leadership opportunities in the residence halls. To date over 700 students have participated in this leadership development program.

**Students With Children**

Information on child care in the Stillwater community is available at the following locations on campus:

- Family Resource Center, 719 N. Walnut, 405.744.6539
- Non-Traditional Student Services
- 036 Classroom Building, 405.744.5488, Marie Basler, coordinator
- Non-Traditional Student Organization, 250 Student Union, 405.744.7508

**University Dining Services**

University Dining Services (UDS) offers more than 32 dining options at the Oklahoma State University campus. UDS makes every effort to provide options to satisfy the hungriest student, the most selective eater, and those who prefer vegetarian options or have limited diets. The choices are endless, with something available from early morning to late night. From national franchise and specialty restaurants to convenience stores with freshly-made grab and go options, UDS provides students with the very best offerings.

UDS also realizes how important it is to provide healthy options for its customers. These options include vegetarian and vegan choices, organic options, and farm fresh produce. UDS is also proud to be a partner with the Sertean Wellness Center in the Choose Orange program, which follows the U.S. Dietary Guidelines for Americans. The Choose Orange logo on an item signifies that it’s a healthy choice. Look for it at UDS outlets across campus.

All freshmen living on campus are required to have a meal plan. Meal plans can be used at any UDS outlet on campus. To learn more about everything UDS has to offer, please visit dining.okstate.edu.

**University Counseling Services**

Suzanne M. Burks, PhD—Director
Trevor Richardson, PhD—Assistant Director
Thomas Berry, PhD—Senior Clinical Counselor
Dylan Burns, PhD—Senior Clinical Counselor
Carol Challenger, PhD—Senior Clinical Counselor
Joseph Dunigan, PhD—Senior Clinical Counselor
Veronica Sutton, MS—Outreach Specialist
Tamara Richardson, PhD—Senior Clinical Counselor
Joni Hays, PhD—Coordinator, Reboot Center
Diana Littelfield, MS—Substance Abuse Counselor
Kara Ncum, MS—Substance Abuse Counselor
Kim Postick, MHR—Coordinator, Aihc and Substance Abuse Center
Tamarra Richardson, PhD—Senior Clinical Counselor
Cindy Washington, MS—Clinical Counselor
Jason White, PhD—Senior Clinical Counselor

The University Counseling Services provides, through the Student Counseling Center—confidential, professional, personal, and career counseling for OSU students. Both individual and group counseling is available. Assistance is offered for emotional problems, as they affect personal and academic goals, intellectual functioning or relationships with others. Among the variety of concerns dealt with in counseling are stress, anxiety, depression, eating disorders, substance use/abuse, interpersonal relationships, and career indecision. Psychiatric consultation is available as needed.

University Counseling Services also assists students with problems, concerns, and experiences relating to educational difficulties; i.e., study habits, test-taking stress, lack of motivation, or attitudes related to school. All information regarding appointments and content of counseling is strictly confidential.

University Counseling Services operates the Reboot Center. The Reboot Center offers free services to help students manage stress. An inviting space to relax, re-charge and re-focus. Computer software platforms with video games and visualization help to facilitate stress management skills. Individual consultation about managing stress and improving performance is available.

A broad range of developmental and proactive programming is offered through University Counseling Services in outreach and service to living groups, organizations and academic classes.

The University Counseling Services is an accredited member of the International Association of Counseling Services, Inc.

**Americans With Disabilities Act (ADA) Compliance Program**

Office of Equal Opportunity

OSU is committed to improving the full and nondiscriminatory participation in all aspects of campus life for individuals with disabilities. Considerable progress has been made to enhance ADA access to OSU programs, services, facilities and grounds. Students with disabilities are encouraged to help with such efforts by identifying and reporting barriers and other access issues encountered throughout the University Community to the Office of Equal Opportunity. Any student who believes they have experienced discrimination on the basis of a disability can seek resolution through the Equal Opportunity Officer. For more information, contact the Office of Equal Opportunity, 408 Whitehurst, 405-744-9153, email address eoo@okstate.edu.

**Student Disability Services**

Isabel Medina Keiser—Coordinator

Student Disability Services (SDS) at Oklahoma State University offers academic support to students with disabilities attending the Stillwater campus. Student Disability Services is committed to providing a community that ensures full participation for students. Additionally, Student Disability Services serves as a resource for faculty and staff members. Appropriate services are determined on an individualized basis and may include academic advisement, specialized testing, accessible text books, classroom access, assistive technology, and other services based on disability-related need. Students must initiate a request for services by contacting Student Disability Services at 315 Student Union, 405.744.7116, fax 405.744.8380. In addition, students may exercise certain ADA appeal “rights” if dissatisfied with student services and or their academic accommodations (forms and procedures will be made available as requested).

**University Health Services**

Chris Barlow, MHA—Director

Oklahoma State University is as interested in the student’s physical and emotional well-being as it is in his or her intellectual and cultural development. Good health will not guarantee academic success, but it will help; while poor health, whether physical or emotional, can impair both the academic and the extracurricular career.

University Health Services maintains a staff of full-time physicians, nurses, laboratory technologists, pharmacists, x-ray technicians, and other necessary support personnel who make a specialty of providing the best possible care at the least possible expense for the student.

University Health Services is an ambulatory primary care facility, designed to provide cost-effective, physician-directed health care to students. Laboratory, x-ray, pharmacy and elective services are provided on a fee for service basis. In the event a medical condition exists that is beyond the scope of the services offered, referrals can be made to a family physician or a local physician in Stillwater.

Emergency services are offered by Stillwater Medical Center 24 hours a day. University Health Services is fully accredited by the Accreditation Association for Ambulatory Health Care.

**Health Requirements**

All new students are required to complete the OSU Health History and Immunization form. Oklahoma law requires that students report their compliance with certain required immunizations; specifically measles, mumps, rubella, hepatitis B, and meningitis. Information about the requirements for compliance is explained in detail on the OSU Health History form that is available for download from the Internet at http://uhhs.okstate.edu/. Failure to comply with these guidelines may prevent future enrollment.

**Tuberculosis Testing International Students.** All international students are required to be screened for tuberculosis prior to being allowed to complete initial enrollment. International students must be completed at University Health Services. If screening indicates that TB testing be performed, the student will be responsible for the cost of testing. No tests from outside the US will be accepted. A chest x-ray film from outside the US does NOT satisfy this requirement.

**Tuberculosis Testing Domestic Students.** Domestic students who meet any of the following criteria need to be screened for tuberculosis:

- Students who have resided outside the U.S. for more than eight weeks continuously or
- Students with a health/medical condition that suppresses the immune system or
- Students with known exposure to someone with active tuberculosis disease.

For more information contact University Health Services, 1202 West Farm Road, Oklahoma State University, Stillwater, Oklahoma, 74078, or download the form from the Internet at uhs.okstate.edu.

**Mandatory Health Insurance for Non-Immigrant Students**

The Oklahoma State University Board of Regents requires that non-immigrant students maintain health insurance as a condition of enrollment. The premium

2014-2015 University Catalog
for the Student Health Insurance Plan will be included with tuition and fees for all non-immigrant Oklahoma State University Students. The premium will be waived for nonimmigrant students sponsored by the United States Government, a foreign government recognized by the United States of America, or certain international government sponsored or non-governmental organizations. Waivers will be based on the government or organization guaranteeing payment of all health care expenses including medical evacuation and repatriation. Documentation of such guarantee must be presented to Oklahoma State University Human Resources.

The insurance premium will be waived for students who provide documented evidence of health insurance coverage, including medical evacuation and repatriation, by an employer whose plan meets the standards of the Patient Protection and Affordable Care Act. Nonimmigrant students employed by OSU and eligible for the OSU employee insurance plan will not be covered by the student plan. Documentation of health insurance through OSU as an employee of OSU must be presented to Oklahoma State University Human Resources. Students employed by OSU as either Graduate Teaching Assistants or Graduate Research Assistants may receive the Student Insurance Plan as part of their assistantship. Please inquire about that with the academic department in which the assistantship is located.

If you have an appointment as an OSU Graduate Teaching or Research Assistant, OSU provides the student health insurance policy for you. You will be required to submit a request for waiver. Waivers are required to be submitted by the end of the fifth day of classes. Waiver forms can be found at union.okstate.edu/iss/ProspectiveStudents/General.htm.

Campus Life

Kent Sampson—Director, Campus Life
Ruth Lofti—Campus Life Administrative Associate
Brandon MRTs—Manager, Allied Arts and Special Events
Stephen Hasley—Manager, Center for Ethical Leadership
Marie Basier—Coordinator, Non-Traditional Student Services
Adam Smith—Coordinator, Student Union Programs
Joyce Montgomery—Coordinator, Service-Learning Volunteer Center
Ival Gregory—Manager, Fraternity & Sorority Affairs
Ann Reightler—Coordinator, Fraternity & Sorority Affairs
Fran Gragg—Coordinator, Office of Parent and Family Relations
Tim Huff—Manager, International Students & Scholars (ISS)
Regina Henry—Coordinator of Immigration, ISS
Linda Dunbar—Coordinator, International Tax, ISS
Karen Sebring—Coordinator, Sponsored Students, ISS
Elizabeth Scott—International Student Specialist, ISS
Anne Mahoney—Coordinator of International Undergraduate Admission, ISS
Vivian Wang—Manager of Recruitment and Development in China, ISS
Trisha Chaparala—International Student Specialist, ISS

The Department of Campus Life is in the forefront of co-curricular activities on campus. Enhancing a sense of “Campus Community” is a key thrust of this department. It is responsible for the facilitation and implementation of programming for students and student organizations at the University. Campus Life’s commitment is to provide an environment that encourages interaction among students, faculty, staff and the community at large through organizations to provide the best quality of services with integrity and respect for a diverse population.

Services provided by the Campus Life Center, 211 Student Union, insurance for OSU sponsored trips, notary public, registering posters, fliers and signs, scheduling use of campus grounds, student organization records in liaison with the Student Government Association, Motor Pool requests, campus work orders for student groups, scholarship and membership applications, and a resource center that offers a wide variety of brochures on various subjects.

Additional information about our services is found at http://campuslife.okstate.edu/. Campus Life at OSU encompasses the following administrative and programming areas:

Allied Arts

OSU Allied Arts was established in 1922 and is the longest running university performing arts series in the state. Our priority is to broaden students’ horizons by presenting artistically rich and culturally diverse performing arts events. This series gives many students their first taste of opera, ballet, jazz, Shakespeare, or even the Golden Dragon Acrobat from China! Students, faculty and staff can purchase a subscription for all events, or individual tickets to specific shows. To find out more, “Like” OSU Allied Arts & Special Events on Facebook. Also, ticket information and the performance schedule are available at http://alliedarts.okstate.edu.

CampusLink

CampusLink is OSU’s student organization database offering information about over 450 student groups at OSU, student development transcript and volunteer service recording. Every student should login to CampusLink and set up their profiles since this is also where all campuswide elections are held. To login, go to https://campuslink.okstate.edu and use your okstate.edu email and password.

Fraternity & Sorority Affairs

Oklahoma State University’s award winning fraternity and sorority community is comprised of members of four governing councils: Interfraternity Council, Multicultural Greek Council, National Pan-Hellenic Council, and Panhellenic Council. While the fraternal community at Oklahoma State University began more than one hundred years ago, its impact continues to flourish on campus. Today, more than 4,000 students are strongly and vital members of the OSU fraternity and sorority community. We are proud to have a thriving system on campus with numerous, diverse nationally recognized fraternities and sororities represented.

Our fraternity and sorority community offers students a unique opportunity to have a balanced college life with a focus on academic excellence, brotherhood/sisterhood, community service and responsible social interaction. Greek affiliation also allows students to make lasting friendships with individuals with similar ideals and common purposes. For more information, visit our website at http://gogreek.okstate.edu.

Honor and Service Organizations

OSU offers opportunities for personal and professional development through many nationally-affiliated honor and service organizations. These organizations provide opportunities for leadership and program development, new friendships and recognition of achievement. University-wide organizations include:

- Blue Key (junior and senior honor society)
- Golden Key (junior and senior honor society)
- Mortar Board (junior and senior honor society)
- National Society of Collegiate Scholars
- Order of Omega (honor society for sorority and fraternity members)
- Phi Eta Sigma (freshman and sophomore honor society)
- Phi Kappa Phi (national honor society for seniors and graduate students)

(See college sections for organizations within each college.) Also on campuslink at https://campuslink.okstate.edu/organizations.

International Students and Scholars

The Office of International Students and Scholars (ISS) provide assistance to more than 2,000 nonimmigrant students and scholars from more than 100 countries around the world. The goals of ISS are to assist international students and scholars with education on U.S. immigration regulations, orientation to the OSU environment and the American culture, exposure to the University resources available, and familiarization with the campus and community. ISS is responsible for advisement and support to students, faculty and staff on matters specifically related to international students and scholars. Additional international related services include admission of international undergraduate students, employment and tax assistance, immigration consultation, liaison with embassies, consulates and sponsoring agencies, legal referrals, academic referrals, orientation programs, community involvement and logistical support for special and nonacademic short term programs.

ISS provides numerous services to newly admitted international students prior to and after their arrival in the U.S. Some of the services include pre-arrival information, ground transportation from the Oklahoma City airport to OSU, banking, orientation, enrollment assistance, employment clearances, and support as needed. ISS informs continuing students on events and immigration issues through its weekly ISS listserv and web page. ISS also provides various public presentations on internationally-related issues as requested.

ISS supports numerous events and activities that encourage American and international student integration as well as faculty and staff participation. ISS is located at 250 Student Union within the Department of Campus Life. Find us at http://iss.okstate.edu/.

Lectures

Oklahoma State University, through its academic organizations and student groups, has a significant number of speakers each year, enriching the intellectual life on campus. Individuals, from both off-campus and on-campus, share their expertise with faculty, students, staff, and town’s people on a wide variety of topics.

Many of the academic units as well as student groups invite speakers to their meetings in order to enhance the educational component of the University. These lectures are generally of interest to specific academic areas, rather than to the general campus.

The Student Government Association, through its Speaker’s Board, brings major figures in politics, entertainment and health into the campus. The Student Union Activities Board also has a speaker’s program related to topics of general student interest. Other student organizations conduct active lecture programs concerning their interest areas.
Allied Arts conducts lecture-demonstrations in conjunction with its performing arts presentations. In this manner, students can gain additional knowledge of the performing arts and its artists.

Non-Traditional Student Services

The primary goal is to assist nontraditional students, anyone with at least a two-year break in education, by providing support, information and referrals. The coordinator serves as a resource person for the entire campus community and seeks to raise the awareness of faculty, administrators and students with regard to the needs of this special group. All nontraditional students are encouraged to stop by the Campus Life Center, 211 Student Union to discuss their concerns or questions. The coordinator also advises students who have rent-related difficulties, such as landlord disputes, or who are looking for housing off-campus. Find us at http://campuslife.okstate.edu/non-traditional-student-services/

The Center for Ethical Leadership

To meet the leadership challenges of the 21st Century, Oklahoma State University’s Center for Ethical Leadership develops and prepares students to be creative, ethical, inclusive, and effective leaders. Through the collaborative efforts of a variety of academic and student affairs’ programs and staff, the mission of the Center for Ethical Leadership is to create, administer, and facilitate the following leadership development activities for OSU students:

- Multidisciplinary instruction and scholarship in leadership and ethics
- Opportunities to experience, meet, and interact with a variety of significant leadership speakers
- Co-curricular and service-learning field experiences
- International leadership study abroad opportunities

The Center’s Programs are divided into Curricular, Co-Curricular, and Recognition Programs. In the Curricular Programs we administer President’s Leadership Council, McKnight Leader/Scholar Program, The Leadership Study Abroad Program and The Leadership Minor Program. In the Co-Curricular Program we offer The Emerging Leaders Program (LEAD), The Leadership-in-Residence Speaker Series, and The Women in Lifelong Leadership Program (WILL). Every spring semester as part of our recognition programs we acknowledge and celebrate leaders through the Oklahoma State University’s President Leadership Recognition Reception. Find us at http://leadership.okstate.edu/.

Office of Parent and Family Relations

Cowboy Parents consists of OSU parents and family members whose goal is to support their students and the University by sponsoring events, activities and scholarships both on campus and in their home communities. Cowboy Parents sponsors scholarships for students, safety programs for students and the Parents’ Handbook that is distributed during new student orientation. The Association sponsors an annual family weekend and dad’s day during the fall of each year and mom’s day during the spring. Members receive free publications, a membership card that entitles them to discounts at select Stillwater area merchants, a vehicle decal to display and electronic newsletters that remind them of campus events, important dates, and deadlines on campus.

The purpose of the Cowboy Parents is to:

- enhance communication between the University and the parents of Oklahoma State students.
- provide parents with a supporting role in the education of their students, while providing a forum for networking with other parents.
- take an active role in promoting the excellence of the University.

The objective of the Cowboy Parents is to:

- encourage parents to support the programs and activities of the University.
- help parents and students in the transitional time when the student begins college.
- support the academic community at Oklahoma State University.
- cultivate and recruit new students and families to the University.
- support student affairs and student services that enhances the students out-of-class experience.

Membership dues are $35.00 annually or a onetime payment of $105.00 for lifetime membership. To join, visit the group’s website at http://parents.okstate.edu.

Religious Life

Campus religious centers, supported by state and national church bodies specifically to serve the University community, provide opportunity for worship in both traditional and contemporary services; religious education commensurate with higher learning for the development of the whole person; counseling that maintains a spiritual basis for the cohesion and meaning of life; and social activities which allow relationships and life views to deepen. The 18 religious centers have strategic locations close to campus and, in addition to their own ministry, coordinate many of their efforts with each other, other campus religious organizations and the University administration through the Interfaith Council.

Service Learning Volunteer Center

Since the Service-Learning Volunteer Center’s inception in 1984, Oklahoma State University students have served at hundreds of non-profit agencies, building a reputation of civic responsibility within higher education and other communities in Oklahoma. Working together toward a common goal, the Service-Learning Volunteer Center has had an impact on communities worldwide. The focus of the Service-Learning Volunteer Center is to provide OSU students with opportunities that reflect academic needs and personal interests. Working with local, state and national non-profit agencies, students at Oklahoma State University are provided with opportunities to grow and excel through meaningful hands-on involvement in service, research and academic interests. Through information sessions and an annual service-learning fair, a traditional fall event, the Service Learning Volunteer Center keeps students informed about upcoming events and needs in the local community. Through service-learning, students learn and develop through active participation in thoughtfully organized service experiences that meet actual community needs. The Service-Learning Volunteer Center continues to enrich lives of our community members through intergenerational and interpretive service projects. It is only through the exceptional spirit of volunteerism at Oklahoma State University that the SLVC records immense success in its programs and activities. With more than 230,000 hours of community service recorded, we continue to set and reach new goals.

Further information is available on the Internet at http://volunteer.okstate.edu.

Student Development Transcript

The Student Development Transcript (SDT) gives OSU students the opportunity to record their co-curricular activities in a format similar to an academic transcript. Involvement in all campus organizations may be included. The transcript can be used with applications for scholarships, honorary organizations and with resumes for job applications. Students begin to CampusLink at https://campuslink.okstate.edu to begin their transcript. You may contact Campus Life at campuslink@okstate.edu for more information.

Student Union Activities Board

SUAB is the premier programming board at Oklahoma State, enriching OSU through cultural, entertainment, and recreational activities. Students in SUAB coordinate events that are as diverse in nature as the students at OSU, such as Bedlam Bonfire Bash, concerts, comedians, speakers, Cowboy Showcase, movies, Bingo, student art exhibits, a Coffee House/Open Mic program, and Dragonfly, Stillwater’s only drag show. SUAB has five programming committees and five executive chairs. It is one of the most active campus organizations at OSU. Find us at http://suab.okstate.edu/.
University Police Services

Public Safety

Philosophy and Service. The Oklahoma State University Police Department is dedicated to enhancing the opportunity for students, faculty and staff to participate in the educational experience by providing a safe, protected and orderly environment. As a service organization, the department offers a full range of police resources, including area patrols, criminal investigations, crime prevention, facilities security analysis, and event planning. In addition, members of the department serve on University and community committees, provide training and specialized presentations to campus organizations and living groups, participate in the design and installation of safety and traffic control devices, and act as special advisers to all campus departments and administration. The professional police men and women, full-time staff members, and part-time employees are all handpicked to meet the high standards and multidimensional mission of a police department.

The OSU Police Department recently implemented a SafeWalk program. Established on November 1, 2013, and staffed with trained Public Service Officers, the SafeWalk program promotes personal safety by offering free walking escorts to members of the OSU community to destinations within the campus grounds. A person can call the OSU Police Department’s non-emergency number (405-744-6523) and request assistance or make a request directly to any Public Service Officer on duty. The SafeWalk program operates between the hours of 7:00 p.m. and 3:00 a.m. daily. In addition to the SafeWalk program, these Public Service Officers perform security checks of campus buildings and surrounding grounds, watching for criminal behavior or suspicious activity, and have direct radio contact with the law enforcement officers of the OSU Police Department.

The OSU Police Department was the first policing agency in the State of Oklahoma to receive accreditation from the Oklahoma Association of Chiefs of Police. The OSU Police Department gained accreditation in 1998 and continues its status after undergoing accreditation reviews in 2002, 2005, 2009 and 2012. The OSU Police Department is comprised of 34 sworn officers. The department employs a number of part-time employees (student employees) to perform low-threat duties such as entrance and motorist assists and selected assignments dealing with traffic and crowd control. Through efficient management of resources and success in gaining grant funding from State and Federal sources, the department continues to provide highly trained officers with appropriate communications and police equipment.

Policies and procedures have been adopted that stress conservation of equipment and supplies. Grants from the Department of Justice and other sources have allowed the complete computerization of the records keeping and data management functions. Other grants have provided funding necessary for the installation of video camera systems and other protective measures in high target areas of the campus. Overall, the department has gained more than four hundred thousand dollars in grant support to provide the OSU community with better protection and police services. All officers are trained in the principles of community oriented policing.

OSU police provide a positive image to visitors and members of the campus community, whether it is providing directions, motorist assistance, information, or just a friendly welcome. Officers represent the University as a group of caring and professional people, intent upon enhancing a friendly community atmosphere. Necessary enforcement includes using alternatives to arrest when reasonable, and cooperating fully with administrative services and functions that have an impact on student conduct. Enforcement efforts are geared toward providing a safe community.

OSU police participation in athletic and special event staging and planning ensures that all aspects of safety and security of participants are considered. OSU police provide professional crowd control and traffic regulation before, during, and after such events. As first responders to emergency situations, OSU police are often cited by citizens for decisiveness and professionalism. Students and staff find the OSU police willing to share statistics, insights, and experiences that have an impact on student conduct. Enforcement efforts are geared toward providing a safe community.

OSU police participation in athletic and special event staging and planning ensures that all aspects of safety and security of participants are considered. OSU police provide professional crowd control and traffic regulation before, during, and after such events. As first responders to emergency situations, OSU police are often cited by citizens for decisiveness and professionalism. Students and staff find the OSU police willing to share statistics, insights, and experiences that have an impact on student conduct. Enforcement efforts are geared toward providing a safe community.

Policies and procedures have been adopted that stress conservation of equipment and supplies. Grants from the Department of Justice and other sources have allowed the complete computerization of the records keeping and data management functions. Other grants have provided funding necessary for the installation of video camera systems and other protective measures in high target areas of the campus. Overall, the department has gained more than four hundred thousand dollars in grant support to provide the OSU community with better protection and police services. All officers are trained in the principles of community oriented policing.

OSU police provide a positive image to visitors and members of the campus community, whether it is providing directions, motorist assistance, information, or just a friendly welcome. Officers represent the University as a group of caring and professional people, intent upon enhancing a friendly community atmosphere. Necessary enforcement includes using alternatives to arrest when reasonable, and cooperating fully with administrative services and functions that have an impact on student conduct. Enforcement efforts are geared toward providing a safe community.

Crime Awareness

Security, Prevention, Statistics, Intervention

Crime. It is an unfortunate fact that criminal incidents of all types occur on college campuses. Many campuses around the country investigate and make public the nature of crimes, the number, and how they are investigated. Oklahoma State University subscribes to that approach and further believes that the public should know how active the OSU Police is in crime prevention and detection.

The OSU police sponsor a number of special programs for faculty, staff and students designed to provide information about campus security practices and procedures. During freshman parents' orientation each summer and monthly new employee seminars, procedures, suggested practices, availability of pertinent information, and individual responsibilities are discussed. The OSU police crime prevention staff provides additional safety and security programs as requested. (See also “Avoiding Victimization.”)

The crime statistics for the past three years for OSU may be found on the Internet at osudp.okstate.edu.

Reporting Crimes. Crime victims, regardless how seemingly insignificant the crime, are encouraged to promptly report the incident to the OSU Police or the appropriate police agency. To report a crime, a victim or witness need only call the police phone number, 311 (non-emergency) and 911 for emergencies, and a police officer will meet the person to gather the information. For those individuals preferring to use personal cell phones, the caller should dial 744-6523 for non-emergency situations, or 911 for emergencies. An official report is made with copies available to the victim. Each day the incidents from the previous day, excluding names, are summarized and made available to the OSU president, key OSU staff, other law enforcement agencies, the media, and published on the Public Safety Internet page. Each month the number of incidents in each category of crime are counted and reported to the Oklahoma State Bureau of Investigation, who in turn provides the information to the Federal Bureau of Investigation. Each year, the FBI publishes a book of crime statistics called Crime in the United States that includes accurate accounting of the criminal incidents that occurred on the OSU campus. OSU has reported crime statistics in this manner since the FBI began publishing campus crime statistics in 1971. Students and others are encouraged to report crimes or incidents to persons on campus with significant counseling responsibilities. The OSU Public Safety Department has further developed procedures for collecting information on crimes and violations pertaining to liquor laws, drug-related violations, and weapons violations from such counseling personnel and persons referred for campus disciplinary actions on these offenses. Such violations are published along with other criminal statistics.

Should a student need assistance in reporting crimes or incidents on or off campus, university counselors or police will provide guidance, direction or assistance.

Crimes in Progress. To report a crime in progress, a person, victim or witness, can dial 911 or use one of the outside emergency telephones, or call one of the police phone numbers. Either reporting method will stimulate the response of police, fire, ambulance, or other first responders. In addition, the victim of serious crimes can request support personnel, such as ministers, rape crisis or domestic violence counseling, during or after reporting. Additionally, crime victims may be eligible for funds through victim compensation laws administered by the Office of the District Attorney.

Actual Crime at OSU. Although both OSU and the Stillwater Community enjoy a relatively safe environment, it is important to realize that crimes do occur and that everyone should take reasonable precautions to protect themselves and their property.

The crime and arrest statistics reported are those which occurred within

Students, about the importance of good driving behaviors and the effects and penalties of alcohol use and abuse. A second positive effect of the C-CASE effort was the strict enforcement of alcohol-related laws that has shown dramatic results in getting the drunk driver off campus streets and consequentially preventing alcohol-related accidents. This program continues with a combination of education and enforcement efforts directed toward traffic safety and have served as a model for other police agencies throughout the state of Oklahoma.

Thousands of visitors, campers, fishermen, and sightseers visit Lake Carl Blackwell and surrounding recreational areas. OSU Police Officers provide friendly and efficient police protection, including lake patrol and rescue operations on the water.

Overall, the OSU Police Department believes in providing proactive law enforcement and service to the University community.
the jurisdictional boundaries of campus. They do not include "off campus" organizations or "off campus" private housing; these are within the city's police jurisdiction. It is the responsibility of the Stillwater Police Department to monitor and record criminal activities at "off campus" organizations or "off campus" private housing. Crime statistics concerning these locations or areas are available at the Stillwater Police Department.

Crime Statistics. The OSU Public Safety Department collects and publishes crime statistics for the three most recent calendar years concerning the occurrence on campus, in or on non-campus buildings, or property and on public property adjacent to OSU. The following offenses reported to the local police agencies or to the OSU Police: Criminal Homicide, Murder and Non-negligent Manslaughter, Negligent Manslaughter, Non-Forcible and Forcible Sex Offenses, Robbery, Aggravated Assault, Burglary, Motor Vehicle Theft, Arson, and Arrests for liquor law violations, drug law violations, and weapon violations. Crime statistics are also reported by category of prejudice for any Hate Crimes reported.

All of these statistics are published on the OSU Public Safety Internet site at osupd.okstate.edu and are available for printing if individuals desire a printed version or publication. A paper copy can be obtained by calling the Public Safety Office or by writing to OSU Public Safety, 104 USDA Building, OSU, Stillwater, OK 74078 or by requesting a copy electronically at the above Internet site.

Future. Although it is believed that the low incidence of crime will continue, this report is not intended to give a false sense of security. Crime will occur, but prevention efforts can be effective in reducing the opportunities for criminal activity. Citizens play a key role in crime prevention efforts by being cautious, careful, and alert to personal safety and protective of personal and University possessions. The crime prevention tips noted below should be followed.

Security and Access Control. It is OSU's policy to lock the doors of buildings that are not in use. However, when working or studying in buildings after normal working hours, it is suggested that individual offices be locked, based upon an assumption that unrestricted access to the building is possible. Some buildings on campus are rarely locked, at the department's request, since students study and work on projects all hours of the day and night. Again, individual offices should be locked by the user on a presumption that the building is accessible. Residence halls have open access between the hours of 6 a.m. to midnight, Sunday through Thursday, and 6 a.m. to 2 a.m. on Friday and Saturday. During non-open access hours, all residence hall doors are locked except the front desk entrance. Instances of propped open doors have occurred, and residents are encouraged to take security precautions in the halls and rooms. Individual rooms should be locked at all times for safety.

Crime Prevention. OSU has experienced success at reducing and preventing crime. Some of the more notable efforts are:

- Emergency telephone system
- Emergency 911 dialing
- 24-hour preventive patrols
- Campus foot patrol by uniformed officers
- Police officer bicycle patrol
- Burglar alarms in key areas
- 24-hour staff in residence halls
- Custodial staff in academic buildings after hours
- Crime prevention seminar presentations to groups
- Crime prevention pamphlets for students and employees
- Monitoring of some parking lots by surveillance cameras
- Crime stopper telephone line - 744.TIPS (744.8477)

In addition to preventing crime, considerable effort is devoted to crime intervention. All reported crimes are investigated immediately. Follow-up investigation occurs to identify the offender; to assign multiple incident reports; surveillance techniques are implemented to help apprehend violators. When caught, offenders are processed through the county court system and OSU when appropriate.

Police Protection. The OSU campus is protected by a campus police agency consisting of 31 sworn officers, seven support persons, and nine part-time persons. The agency is operated and available 24 hours a day, 365 days a year. The authority of the sworn officers is derived from state statutes; these allow for full police powers on OSU property. In addition the OSU Police Department has a multi-jurisdictional agreement with the City of Stillwater and Payne County Sheriff's Office. These agreements provide additional resources for all agencies involved and therefore the OSU Police enjoy an excellent working relationship with other agencies within the community. All campus police officers undergo an extensive selection process and meet state-mandated training requirements.

Community Policing. The department subscribes to the concepts of community policing. The officers have been trained in and available 24 hours a day, 365 days a year. Authority of the sworn officers is derived from state statutes; these allow for full police powers on OSU property. In addition the OSU Police Department has a multi-jurisdictional agreement with the City of Stillwater and Payne County Sheriff's Office. These agreements provide additional resources for all agencies involved and therefore the OSU Police enjoy an excellent working relationship with other agencies within the community. All campus police officers undergo extensive selection process and meet state-mandated training requirements.

Avoiding Victimization. Tips for personal safety and property security:

- Be cautious of strangers.
- Avoid getting into vulnerable no-exit places.
- Do not hesitate to call police when confronted by unknown persons.

- Keep house or residence hall room locked.
- At night, walk in groups of at least two.
- Walk with confidence, and avoid walking near bushes and parked cars.
- Become familiar with the location of emergency telephones.
- When parking, remove valuables from plain view and lock the vehicle.
- Engrave valuables with driver's license number and record serial numbers.
- Make copies of credit cards and lists of other valuables carried on person.
- Write name and ID number in several places in textbooks.
- Lock bicycle in a bicycle rack.
- Report all incidents and losses to police immediately.

When serious crimes occur on or off campus that are considered to be a threat to the campus community, that information will be provided to faculty, staff and students. The medium for this information dissemination will be the campus newspaper, faculty/staff newsletters, or in special instances, specific notices to on-campus residences. Such notices may be posted on residence hall entrance doors, in residents' mail boxes, or placed on electronic voice mail. In addition, the OSU Department of Public Safety maintains an Internet page at osupd.okstate.edu. This page allows access to the daily crime log, crime prevention tips, and links to other sites providing similar information pertinent to the OSU campus.

Alcoholic Beverages and Other Drugs. As set forth in local, state and federal laws, and the rules and regulations of the University, Oklahoma State University prohibits the unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees in buildings, facilities, grounds, or other property owned and/or controlled by the University or as part of University activities.

Under OSU regulations, with limited exceptions, no low-point beer or other alcoholic beverage is allowed in OSU housing, including fraternities and sororities. Furthermore, under the same regulations, the possession/consumption of low-point beer or alcohol by those of legal age (over 21) is allowed only in certain designated, non-public places on the OSU campus, properties and facilities, including Lake Carl Blackwell. For further explanation, see the pamphlet "OSU Dangers of Drugs and Alcohol Abuse.""}

Drug and alcohol laws are vigorously enforced on the OSU campus. Violators are subject to criminal prosecution in the District Court of Payne County. The enforcement techniques range from plain view violation to long-term undercover investigations by local, state, or federal agents and agencies.

University Counseling Services and the Employee Assistance Program provide counseling and rehabilitation programs for students and employees, respectively. Should these programs not meet an individual's needs, there are other programs in the community or nearby that may be better suited. A number of such programs are listed in the "OSU Dangers of Drugs and Alcohol Abuse" pamphlet.

Students should be aware that a student who has been convicted of any offense under any federal or state law involving the possession or sale of a controlled substance shall not be eligible to receive any grant, loan or work assistance under this title during the period beginning on the date of such conviction and ending at the interval specified in the table below based on the Higher Education Amendments of 1998 [H.R. 6], September 25, 1998, Suspension of Financial Aid for Drug Convictions, Sec. 483. Student Eligibility).

If convicted of an offense involving the possession of a controlled substance, ineligibility period is:

- First offense 1 year
- Second offense 2 years
- Third offense Indefinite

If convicted of an offense involving the sale of a controlled substance, ineligibility period is:

- First offense 2 years
- Second offense Indefinite

Sexual Assault

What to do if Victimized. Oklahoma State University's prevention efforts in the area of sexual assault (including rape) involve the entire community. Many groups are involved in sexual assault prevention. These groups include the OSU Police Department, Residential Life, University Counseling, OSU faculty, Greek Life, University Conduct Office, OSU Student Health Center, OSU Mental Health, PanOK (students who are peer educators), and OSU staff personnel. They provide training programs, presentations, and workshops to any interested individuals or groups.

Program topics generally include stranger rape, date and acquaintance rape, rapist characteristics, rape trauma syndrome, and victim recovery. An increasing number of presentations, explaining the male's role in sexual assaults, are directed to all male audiences, such as fraternities and athletic teams.

Procedures to Follow. A victim of sexual assault should follow certain procedures and consider several options. These procedures and options are clearly outlined in the rape avoidance seminars mentioned previously and "Preventing Sexual Assault" pamphlet made available to the campus community. These educational programs and pamphlets also outline techniques and strategies that help people recognize and avoid sexual assault threats.

2014-2015 University Catalog
Evidence. Preserving evidence is of paramount importance after a sexual assault. Victims should be careful not to bathe, douche, wash clothing, or tamper with other potential evidence after a sexual assault. The first inclination may be to do one or more of these; however, the temptation should be resisted. Evidence is critical in a criminal prosecution.

Contacting the Police Department. When a sexual assault is reported to the OSU Police Department or to the Stillwater Police Department, an officer is dispatched. Determining the extent of physical and emotional trauma that the victim has suffered will be the officer's first concern. If the attack just occurred, the officer will want a brief review of the events, a description of the assailant, the direction of travel, and a description of the vehicle used by the assailant, if any. This information is necessary in order to apprehend the assailant as soon as possible. After the initial interview, the officer or whoever is designated by the victim, will assist in getting a complete change of clothes. Agreeing to have a Sexual Assault Examination. An officer or designee will take the victim to the Student Health Clinic or the Stillwater Medical Center to be examined by a physician. A complete physical examination will be given as well as treatment for any injuries. A friend or relative may be permitted to accompany the victim. In addition, the victim may be examined for the purpose of obtaining evidence that would be needed in court. Appropriate antibiotic therapy can be given to decrease the chances of developing venereal disease. After the examination at the hospital, the officer may bring the victim back to the police headquarters or another location to complete the interview. Again, a counselor is encouraged to be present.

The victim of a rape is not responsible for legal expenses related to the criminal prosecution. The case is prosecuted by the Office of the District Attorney. The victim only has to contribute time. The Stillwater Medical Center can provide initial medical services for rape victims. The Crime Victims Compensation Board can provide payment for medical services and counseling, even if charges are not filed. The victim need only file an application with the Office of the District Attorney.

Police Investigation. Later, at police headquarters, the victim will be asked to be more specific about the events of the attack. A person of the victim’s choosing may accompany the victim during this period. This questioning is done to help the investigation and to help arrange the events firmly in mind. The victim's comments will probably be tape recorded for future reference. This will make testifying in court much easier and less frightening. It will be handled considerably and courteously. Only the investigating officer will ask questions. Based on conversations with the officer, the victim can then decide whether or not to file charges. Threats or harassment of a rape victim after charges have been filed are rare. When finished at police headquarters, the victim can go to a place of their choice. OSU and Stillwater Police officers have been trained to deal with sexual assault victims. However, if the victim should feel uncomfortable speaking to a male officer, every effort will be made to notify a female officer, female councilor, or female volunteer.

A rape or sexual assault may be reported to the hall director, a university counselor, or health worker at the Student Health Center. Charges do not have to be filed against the attacker if a rape is reported. However, it is wise to give information to the police anyway. The information and suspect description may help locate a suspect in other offenses and possibly prevent another person from becoming the victim of a rape. The police will not know that there is a rapist on campus unless they are told. The police will not pressure the victim to file charges. Victims of sexual assault can elect to have personal information eliminated from police reports.

Support Services

University Conduct Office. If the victim does not want the case to be addressed through the criminal justice system, another alternative is available. Cases involving students who are accused of non-academic misconduct might be assigned to the Office of Student Conduct. Persons found guilty of sexual assault, forcible or non-forcible, could be placed on probation or suspended from OSU. Both the accuser and the accused are entitled to the same opportunities to have others present during a campus disciplinary hearing, and both are entitled to be informed of the outcome of any disciplinary proceeding. Further information can be obtained by contacting the Office of Student Conduct at 405.744.5470. Also, a copy of the "Student’s Rights and Responsibilities" can be obtained at various locations on campus.

Role of University Housing and Residential Life. The hall directors and resident assistants who work in the residence halls continually attend sexual assault training programs, and they learn how to respond to a student who has been victimized by a sexual or physical attack. They have been informed about the resources available; in fact, some have been trained to conduct sexual assault presentations and workshops. A victim of a sexual assault may request assistance from the University administration in changing academic and/or living situations where a continued threat may be reasonably assumed.

Role of University Counseling Services. The OSU Student Health Center and University Counseling Services provide individual and group counseling services for those victimized by sexual or physical assault. Services are available to all Oklahoma State University students, regardless of gender, and their significant others.

The psychological and emotional trauma after a sexual assault can be painful. Possible symptoms include: eating disorders, sleep disturbances, lack of trust, guilt feelings, depression, mood swings, and relationship and communication problems. Sexual assault incidents can only be greatly reduced when men and women understand the dynamics involved in sexual assaults and are willing to participate in educational programming and ongoing communication.
Student Code of Conduct

Office of Student Conduct Education and Administration
Campus Address and Phone: 328 Student Union, Stillwater, OK 74078
405.744.5470
Website: studentconduct.okstate.edu

Oklahoma State University is committed to creating and maintaining a productive living and learning community which fosters the intellectual, personal, cultural and ethical development of its students. Self-discipline and respect for the rights and privileges of others are essential to the educational process and to good citizenship. Attendance at Oklahoma State University is optional and voluntary. When students enroll here, they voluntarily accept obligations of performance and behavior that are consistent with Oklahoma State University’s lawful mission, processes, and functions; and accept responsibility for compliance with all University policies and contracts, including the Student Code of Conduct. In general, these obligations are considered much higher than the obligations imposed by civil and criminal law for all citizens. Students voluntarily accept their responsibilities as members of the academic community, as well as any educational sanctions imposed against them should their behavior violate their responsibilities.

The purpose of the Student Code of Conduct is to inform the student body of the standards of behavior that these students aspire to follow and promote:

- **Citizenship:** Be civically responsible and engaged to improve our campus and community;
- **Academics:** Respect Oklahoma State University’s commitment to academic integrity and uphold the values of honesty and responsibility that preserve our academic community;
- **Responsibility:** Accept responsibility for your learning, personal behavior, and future success, appropriately challenging others to do the same;
- **Diversity:** Behave in a manner that recognizes and respects individual differences, supporting both pluralism and inclusiveness;
- **Safety:** Do no harm and help maintain the safety and welfare of the campus community by immediately reporting unusual or dangerous behavior.

Students and other interested individuals may contact the Office of Student Conduct Education and Administration at 405.744.5470 to report concerning behavior or discuss their responsibilities as a member of the community.

Cowboy Community Standards

The Code of Conduct specifies the following behavioral standards that OSU students aspire to follow and promote:

- **Citizenship:** Be civically responsible and engaged to improve our campus and community;
- **Academics:** Respect Oklahoma State University’s commitment to academic integrity and uphold the values of honesty and responsibility that preserve our academic community;
- **Responsibility:** Accept responsibility for your learning, personal behavior, and future success, appropriately challenging others to do the same;
- **Diversity:** Behave in a manner that recognizes and respects individual differences, supporting both pluralism and inclusiveness;
- **Safety:** Do no harm and help maintain the safety and welfare of the campus community by immediately reporting unusual or dangerous behavior.

Regents’ Resolution on Disruption of the Educational Process

A resolution of the Board of Regents for Oklahoma State University to further clarify existing student regulations. Section 1, "Legal Obligation of the Student," as it pertains to the disruption of the educational process, was adopted in the regular monthly meeting at Stillwater, Oklahoma, on July 11, 1970:

Be it resolved by the Board of Regents of Oklahoma State University:

I. That this statement known as "Emergency Disciplinary Procedure in Cases of Disruption to the University’s Educational Process" containing the following provisions be enacted:

A. Definition of Disruptive Conduct

Oklahoma State University has long honored the right of the individual to free discussion and expression, of peaceful demonstration, and of petition and peaceful assembly. That these rights are a part of the fabric of this institution and of the nation as stated in the Bill of Rights is not questioned. They must remain secure. It is equally clear, however, that in a community of learning, willful disruption of the educational process, destruction of property, and interference with the rights of other members of the community cannot be tolerated.

B. Responsibility of the Student

Any student, who willfully by use of violence, force, coercion, threat, intimidation or fear, obstructs, disrupts or attempts to obstruct or disrupt, the normal operations or functions of the University, or who orally or in writing advises, procures, or incites others to do so, shall be subject to dismissal from the University.

The following, while not intended to be exclusive, illustrates the offenses encompassed herein: occupation of any University building or part thereof with intent to deprive others of its use; blocking the entrance or exit of any University building or corridor or room therein; setting fire to or by any other means substantially damaging any University building or property, or the property of others on University premises; any possession or display of or attempt or threat to use or use of firearms, explosives, other weapons or destructive means or devices, except as necessary for law enforcement, in any University building or on the University campus; prevention of the convening, continuation or orderly conduct of any University class or activity or of any lawful meeting or assembly in any University building or on the University campus; inciting or organizing attempts to prevent student attendance at classes; and, interfering with or blocking normal pedestrian or vehicular traffic on the University campus.

C. Responsibility of the President

When it appears that there is a violation of Section I-A or I-B, it shall be the duty of the president (and he or she is fully authorized to act) to take all steps which the president deems advisable to protect the assumed and designated interests of Oklahoma State University and to see that its rules, regulations and policies are enforced. The president shall ensure that any person or persons found guilty after proper hearing shall be disciplined in accordance with the existing Oklahoma State University student disciplinary regulations. In carrying out these duties, the president may call upon any member of the University administration, or any member of the faculty, and the president may call upon any agency of the University created to deal with cases arising under Section A. Action by any state or federal court shall not preclude the University from exercising its disciplinary authority.

D. Responsibility of the Board of Regents

The Board of Regents recognizes that by the Constitution and Statutes it has the power to make such rules and regulations for the management of the University as it may deem necessary and expedient, not inconsistent with the Constitution and laws of the state. While the Regents fully appreciate their obligations in this respect, they further recognize that in dealing with those offenses against the University defined in Section A hereof, they must impose the duty and authority of enforcing the policies set forth herein in the principal executive officer of the University—the president. It will be the responsibility of the Board of Regents to furnish all possible assistance to the president when requested by the president.

II. Subject to the provisions of Sections I-A through I-D, it shall be the duty of the president to exercise full authority in the regulation of student conduct and in matters of student discipline. In the discharge of this duty, delegation of such authority may be made by the president to administrative or other officers of the institution, in such manner and to such extent as may by the president be deemed necessary and expedient; provided, that in the discharge of this duty it shall be the duty of the president to secure to every student the right of due process.

III. The text of this resolution shall be printed in the "Student Regulations" section of the Student Handbook of the University and in the University Catalog.
OSU Alumni Association

The OSU Alumni Association serves as the primary connection between alumni and the university. Its mission is to provide services to its members and alumni, and to support the needs of Oklahoma State University, its students, faculty, staff and friends.

The Alumni Association also provides numerous programs for current students to educate them on OSU history and traditions, engage them in OSU programs and events, and prepare them to be productive graduates of the university. Information about all of the Alumni Association’s student programs is available at orangeconnection.org.

Membership. The OSU Student Alumni Association is the student membership program of the Alumni Association. Members receive many exclusive benefits such as entrance to OSU sporting events, access to alumni lodging discounts, and more.

Life memberships are available at a discounted rate of $600 ($400 savings) to students who opt in to a $75/semester bursar charge. After eight semesters, the student is a life member connected for life through membership to OSU. Students may opt in to the program at any time, and post-graduation payment plans are available for non-freshmen who graduate before making eight payments. Annual Student Alumni Association memberships are also available for $20 per year. Join as a life or annual member at orangeconnection.org/saa.

Student Alumni Board. SAB is a leadership development organization sponsored by the Alumni Association. SAB serves as the governing body for the Student Alumni Association and acts as a liaison between the alumni association and the student body. SAB designs and executes activities and events each semester for the Student Alumni Association members such as Beat Shirts and Sundays on Tuesday. SAB is also responsible for passing along OSU traditions to students, serving as ambassadors at alumni and campus events, speaking at high school scholar banquets on behalf of OSU and planning the annual OSU Legacy Weekend. Students interested may apply for SAB in January 2015 at orangeconnection.org/sab.

Homecoming. “America’s Greatest Homecoming Celebration” has been presented each year by the OSU Alumni Association since 1920. It is run completely by more than 250 Homecoming student members with the collaboration of thousands in the Greek, residential life and student organization communities. Students interested in serving on a committee may apply for the Big Committee in September and the Steering Committee in January 2015 at orangeconnection.org/homecoming.

Class Rings. Students with 60 or more credit hours are eligible to purchase an Official OSU Class Ring. The Alumni Association sponsors the only ring program officially recognized by the university and hosts two ceremonies each year to present recipients with their rings. Visit orangeconnection.org/ring or call 405.744.8716 for more information.

Student Awards. The Alumni Association recognizes students for their scholarship, campus leadership and service to campus and community with the Seniors of Significance and Outstanding Seniors awards. Seniors are encouraged to apply in September 2014 at orangeconnection.org/studentawards.

OSU Foundation

The Oklahoma State University Foundation is a 501(c)(3) not-for-profit corporation. Gifts to the Foundation are deductible under Section 170 of the Internal Revenue Code. Established in 1961, the Foundation unites donor passions and university priorities to achieve excellence and manages donated resources efficiently and effectively.

The OSU Board of Regents, through a resolution passed in 1966, directed that gifts or donations made for the benefit of Oklahoma State University be made to the OSU Foundation.

Although it is a separate and distinct legal entity from the Oklahoma State University System, the OSU Foundation maintains a close and cooperative working relationship with the University to establish fundraising priorities and cultivate constituency relationships.

OSU-Oklahoma City

Natalie Shirley—President
Bill Pink, PhD—Vice President for Academic Affairs
Bradford Williams, MS—Vice President of Student Services
Robin Roberts Krieger - Business and Industry Training & Economics
Ronda L. Reece, MS—Vice President for Finance and Operations

Oklahoma State University-Oklahoma City (OSU-Oklahoma City) is a North Central Association accredited, public campus that develops and delivers collegiate-level career and transfer educational programs. OSU-Oklahoma City serves one of the fastest growing metropolitan cities in the country. It is located in the heart of Oklahoma City, at the crossroads of Interstate 44 and Interstate 40, and enrolls approximately 7,000 full- and part-time students each semester.

OSU-Oklahoma City has grown from a campus of one building with fewer than 100 students in 1961 to a campus that today consists of 110 acres, 14 buildings, and 585 full-time faculty and staff.

Offering one bachelor of technology degree, 32 associate of applied science degree programs, eight associate of science degree programs, a variety of certificates, and non-credit education courses, the Oklahoma City campus takes pride in its student-centered approach to collegiate education. Curricular patterns are designed in response to local employment needs and input from professionals who serve on OSU-Oklahoma City advisory committees. All energies are directed toward one goal—blending both academic and student support services to create a collegiate educational experience that addresses the needs of the individual student. Degrees awarded at OSU-Oklahoma City are listed below.

Bachelor of Technology

The bachelor of technology degree is a 124-credit hour technology-intensive application-focused baccalaureate degree.

Human Services
Emergency Responder Administration

Associate in Applied Science

The associate in applied science degree signifies the completion of at least 60 semester credit hours of collegiate course work that will place the graduate on a career path. Oklahoma State University-Oklahoma City offers 33 associate in applied science degree programs in six divisional areas.

Agriculture Technology
Horticulture Technology
Turfgard Managements
Veterinary Technology

Arts and Sciences
Applied Technology
Graphic Designer
Technical Spanish/Translation and Interpretation

Business Technology
Accounting
Management
Restaurant Management

Health Services
Cardiovascular Ultrasound
Dietetic Technology
Nurse Science
Radiologic Technology

Human Services
Crime Victim/Survivor Services
Early Care Education
Emergency Medical Services-MFP
Municipal Fire Protection
Police Science
Sign Language Interpretation

Science and Engineering Technology
Architectural Technology
Construction Technology
Computer Information Systems
Electrical Power Technology
Electronics Engineering Technology
General Engineering Technology
Information Technology
Management Information System
Power Transmission and Distribution Technology
Renewable/Sustainable Energy
Surveying Technology
Wind Turbine Technology

Associate in Science

The associate in science degree is a program designed for transfer to an upper-division baccalaureate degree program. The associate in science degree is typically awarded to those who wish to major in subjects with heavy undergraduate requirements in mathematics and science, including, but not limited to, fields such as engineering and agriculture. It represents successful completion of a minimum of 60 credit hours, excluding any physical education courses. Oklahoma State University-Oklahoma City offers eight associate in science degree programs.

Agriculture Technology
Horticulture Technology
Arts and Sciences
Enterprise Development (Reach Higher) - General Studies
Public Service
Department of Business Administration
Enterprise Development (Reach Higher) - Business Administration
Higher Education Cooperative Agreements
The purpose of these agreements is to serve students who choose to pursue unique OSU-Oklahoma City degree programs in their geographical areas. The following are our current higher education partners and programs:

- Nurse Science - Panhandle State University

Career Technology Center Cooperative Agreements
The purpose of these cooperative agreements is to allow students of approved career technology center programs to obtain OSU-Oklahoma City college credit so they may attain their education or career goals.

- Accounting - Metro Technology Centers
- Computer Information Systems - Accounting Option - Francis Tuttle Technology Center
- Computer Information Systems - Metro Technology Center
- Emergency Medical Services - Municipal Fire Protection - Canadian Valley Technology Center
- Early Childhood Education - Metro Technology Center
- Electronics Engineering Technology - Metro Technology Center
- Fire Protection & Safety Technology - Kiamichi Technology Center
- Electronics Engineering Technology - Metro Technology Center
- Fire Protection & Safety Technology - Great Plains Technology Center
- Graphic Design - Illustration / Multimedia Option - Metro Technology Centers
- Horticulture Technology - Metro Technology Centers
- Information Technology - Network Option - Metro Technology Centers
- Municipal Fire Protection - Eastern Oklahoma County Technology Center
- Radiologic Technology - Metro Technology Centers
- Restaurant Management - Metro Technology Centers

Philosophy
Oklahoma State University-Oklahoma City operates in the belief that each person should be treated with dignity and respect, afforded equal opportunity to acquire a complete educational experience, given an opportunity to discover and develop their special aptitudes and insights, and provided an opportunity to equip themselves for a fulfilling life and responsible citizenship in a world characterized by change.

The Mission
Oklahoma State University-Oklahoma City develops and delivers collegiate-level career and transfer educational programs, professional development and support services which prepares individuals to live and work in an increasingly technological and global community.

Institutional Effectiveness
Institutional effectiveness efforts provides for a long-term commitment to institutional change through assuring effective, on-going institutional self-study processes. These efforts are an integral part of institutional decision-making systems and the student learning and growth process. The purpose of the institutional effectiveness effort on campus is to ensure that systems are in place that: determine effectiveness, are improvement oriented, maximize learning resources, provide meaningful and quality information for faculty, service providers, students and staff to assist in decision-making, and provide an effective guide for planning.

Institutional effectiveness is driven by a process of critical self-examination and is directly related to improving processes and services, the curriculum and the quality of teaching and learning within the institution. A process for determining institutional effectiveness must be linked to the major functions of the mission of the institution.

OSU-Oklahoma City has developed a plan that calls for a continuous quality improvement process that engages faculty, staff and students in thinking about the purpose and mission of education and the OSU-Oklahoma City campus. Programs that assess and document student growth, learning and the associated processes are an integral part of this plan.

Institutional Grants
This office develops and implements processes that support faculty and staff efforts to develop winning grant proposals. This includes assistance with identifying funding sources, writing the proposal, and completing post-award financial and reporting requirements.

Institutional Assessment
This office of Institutional Assessment provides leadership, support and guidance to all OSU-OKC academic and nonacademic divisions as they work toward meeting the goals set forth by the university's (agency) strategic plan: to increase student success rates by 65%; increase FTDEG graduation rates by 18%; increase persistence rates by 70%; raise OSRHE retention rates to 50%; and, raise OSRHE graduation rates to 12%. This office is also responsible for maintaining accreditation compliance including analyzing and reporting operational and assessment data to the State Board of Regents and the Higher Learning Commission.

Functions of OSU-Oklahoma City
OSU-Oklahoma City maintains an open-door policy that provides access to higher education for all eligible individuals, and prohibits all students from being denied admission or treated unfairly and with no discrimination, regardless of social, economic or academic background.

OSU-Oklahoma City provides students the opportunity to acquire the knowledge and skills that enable them to accomplish specified career or personal educational goals.

OSU Institute of Technology
BII R. Path, Ed.D—President
Bill Path, Ed.D—President
Greg Mosier, Ed.D—Vice President, Academic Affairs
Jim Smith, M.S., Div.—Vice President, Fiscal Services
Ina Agnew, Ed.D—Vice President, Student Services
Anita Gordy-Watkins, M.S.—Vice President, Institutional Advancement

Oklahoma State University Institute of Technology is a residential branch campus of OSU that focuses upon offering quality education in advancing technological and academic programs. Graduates earn the associate in applied science, associate in science or Bachelor of Technology degree.

OSUIT’s core curriculum is as diverse and innovative as its student body. Individuals receive the comprehensive education required to prepare them as competitive members of a world-class workforce and to be contributing members of society. Unique in Oklahoma, the Okmulgee campus blends the best of emerging technologies, enhanced computer applications and general education to prepare students for rewarding careers in business and industry.

Each program curricula is carefully reviewed twice each year by a team of industry and business advisers to make certain course content and instructional aides remain relevant. Students enjoy the low faculty-student ratio, the emphasis upon hands-on learning, and industry-experienced faculty.

OSU Institute of Technology has established an extensive array of business and industry partnerships that enhance participating programs. Many national and international corporations have chosen to partner with OSUIT. These partnerships support the college with scholarships, training aids and equipment. Students benefit by having greater access to sponsoring partners and employers at on-campus programs. Students in most programs of study also participate in internships, a closely monitored, authentic work experience in a business or industry within their career choice. Most interns receive pay during their internship.

OSU Institute of Technology continues to take the leadership role in a number of Cooperative Alliance Agreements which allow high school and adult students to receive college credit for course work while they are enrolled at a participating Technology Center, and apply that credit toward an Associate in Applied Science degree.

Several industry certifications and program accreditations also attest to the quality of instruction. The Nursing program is accredited by the National League for Nursing Accrediting Commission (NLNAC) as well as the Oklahoma Board of Nursing. Orthotics and Prosthetics is accredited by the National Commission on Orthotic and Prosthetic Education (NCOPE). The Information Technologies program (Bachelor of Technology) is ABET accredited by their Computing Accreditation Commission (CAC), and the Civil Engineering Technology program (Bachelor of Technology) is ABET accredited by the Engineering Technology...

The combination of the college's high quality educational programs, business and industry partnerships, the internship program, and modern and well-equipped instructional facilities, ensures OSU Institute of Technology graduates are highly marketable in a competitive job-seeking environment. Job placement for OSUIT graduates is among the highest in Oklahoma, with many often having several job offers prior to graduation.

The college's educational programs are divided into ten instructional divisions, each with several instructional programs. They include:

- Arts and Sciences: transfer degrees in pre-education, business, enterprise development and allied health sciences;
- Automotive Technologies: automotive service (Chrysler MOPAR, Ford ASSET, GM ASEP, PRO-TECH, Toyota T-Ten), automotive collision repair;
- Construction Technologies: air conditioning and refrigeration technology and construction technologies;
- Engineering Technologies: electrical-electronics technologies, instrumentation, civil, engineering graphics, manufacturing, surveying, pipeline integrity, and power plant technology;
- Diesel and Heavy Equipment Technologies: Caterpillar, Komatsu, Aggreko, SW Association, and Natural Gas Compression;
- Information Technologies;
- Nursing & Health Sciences division: nursing, orthotics and prosthetics;
- School of Culinary Arts;
- School of Watchmaking;
- Visual Communications Technologies: graphic design, 3D modeling and animation, and photography.

Students may also pursue the Bachelor of Technology degrees in civil engineering technology, information technology, and instrumentation engineering technology.

OSU Institute of Technology operates on a year-around, three-semester system. New semesters begin in late August, in early January and mid-April. The college participates in both national and state financial aid programs. Deadline is March 1 for financial aid applications. Most scholarship deadlines also are March 1.

Oklahoma State University Institute of Technology is located at 1801 E. 4th Street, Okmulgee, Oklahoma 74447-3901. The toll free phone number at OSUIT is 1.800.722.4471. Information can also be found on the web at www.osuit.edu. Visitors are always welcome.

OSU Tulsa

Howard G. Barnett—President
Raja Baru, PhD—Vice President for Academic Affairs

Oklahoma State University offers undergraduate and graduate programs at OSU-Tulsa. For undergraduate programs, lower-division courses (1000- and 2000-level) are available at Tulsa Community College or other area two-year colleges. Students should consult an OSU-Tulsa academic advisor for a list of transferable courses. Upper-division (3000- and 4000-level) and graduate (5000- and 6000-level) are offered at OSU-Tulsa.

Each student wishing to attend OSU in Tulsa must be admitted to either the academic degree program of choice or as a non-degree seeking student. All students must comply with admission procedures of OSU. Once admitted, regulations published in the OSU Catalog govern the student’s pursuit and completion of the degree program.

OSU provides admission, enrollment, financial aid and academic advising services at OSU-Tulsa. Scholarships are also available from OSU-Tulsa. Students may enroll in classes in Tulsa or Stillwater and pay tuition at either location. The student’s official academic records and transcripts are maintained by OSU at the Stillwater campus. Faculty are hired by OSU and the college offering the degree program. Upon completion of an academic program, OSU grants the degree. Students are responsible for making certain each course taken will apply toward the chosen degree or certificate program. Courses taken from other participating universities are treated as transfer credit courses. Transfer credit hours are applied to a student's degree program in accordance with regulations of OSU.

OSU-Tulsa is administered by a Board of Trustees and is under the governing authority of the OSU Board of Regents. Classes are held at 700 N. Greenwood Ave., Tulsa, OK 74106-0700. Semester class schedules for OSU-Tulsa are available online at http://www.osu-tulsa.okstate.edu/schedule/index.php. For additional information on undergraduate programs, contact the OSU-Tulsa campus at 918.594.8355. For additional information on graduate programs, contact the OSU-Tulsa Graduate Student Services Center at 918.594.8455 or visit the website at www.osu-tulsa.okstate.edu.
University Academic Regulations

CONTENTS
1. Admission, Academic Standing and Withdrawal
   1.1 Admission of Freshmen
   1.2 Admission of Transfer Students
   1.3 Admission to Certain Professional Programs
   1.4 English Proficiency Requirement
   1.5 Satisfactory Academic Progress
   1.6 Good Academic Standing and Scholaristic Requirements for Continuing Enrollment of a Student under Academic Probation in an Undergraduate College
   1.7 Academic Suspension
   1.8 Reinstatement after Academic Suspension
   1.9 Readmission
   1.10 Cancelling Enrollment and Withdrawing from the University
2. Student Status
   2.1 Classification of Students
   2.2 Full-time Students
   2.3 Part-time Students
   2.4 Special Students
3. Undergraduate Degree Requirements
   3.1 Date of Matriculation
   3.2 Changes in Degree Requirements
   3.3 The Honors College
   3.4 General Education Requirements
   3.5 English Composition Requirement
   3.6 Substitution of Required Courses
   3.7 Waiving of Required Courses
   3.8 Changing Majors
   3.9 Deadline for Completion of Requirements
   3.10 Second Baccalaureate Degree
   3.11 Double Majors and Minors
   3.12 Pre-finals Week
   3.13 Final Exam Overload
4. Credits
   4.1 Residence Credit
   4.2 Credit Earned through Outreach and Correspondence
   4.3 Transfer Credit from Other Accredited Four-year Institutions
   4.4 Transfer Credit from Community Colleges
   4.5 Transfer Credit from International Colleges and Universities
   4.6 Credit by Exam
   4.7 Graduate Credit Hours for a Senior
   4.8 Semester Credit Hour
   4.9 Foreign Language Credit for Native Speakers
5. Enrollment
   5.1 Course Numbering System
   5.2 Maximum Semester Credit Hour Load
   5.3 Adding Courses
   5.4 Dropping Courses
   5.5 Concurrent Enrollment
   5.6 Course Prerequisites
   5.7 Class Enrollment Maxima
   5.8 Priority Enrollment
   5.9 Late Enrollment
   5.10 Payment of Tuition and Fees
   5.11 Auditing Courses
   5.12 Minimum Class Size
6. Grades and Grading
   6.1 Official Transcripts
   6.2 Grade Interpretation
   6.3 Grade-point System
   6.4 Grade-point Average Calculating
   6.5 Six Week Progress Reports
   6.6 Pass-No Pass Grading System
   6.7 Pass-Fail Grading System
   6.8 Grade Reports

7. Graduation
   7.1 Graduation Requirements
   7.2 Residence Credit Requirements
   7.3 Residence Waiver for Certain Premedical and Prelaw Students
   7.4 Minimum Hours for Graduation
   7.5 Grade-point Average for Graduation
   7.6 Payment of Graduation Fees
   7.7 Requirements for Honors Degrees
   7.8 Diploma Application
   7.9 Presence at Commencement Exercises
   7.10 Graduation with Distinction
   7.11 Professional Education

In addition to these minimal regulations, additional college, department or program requirements may apply. Students are advised to review all steps of their academic progress with their academic adviser.

1. ADMISSION, ACADEMIC STANDING AND WITHDRAWAL

1.1 Admission of Freshmen. Policies and procedures governing the admission of new freshmen are detailed in another section of the Catalog. (See "Undergraduate Admissions.")

Assessment/Course Placement. To help insure that students possess the skills necessary to be successful in college, the Oklahoma State Regents for Higher Education require students to obtain a 19 ACT subject area score(s) in science reasoning, mathematics, and English to enroll in course work in the respective subject area(s). Students must score 19 or higher in reading to enroll in courses that require extensive reading. Students scoring below 19 will be required to remediate in the discipline area (UNIV 0023, 0113, 0123, 0133, or 0143) or undergo additional testing to determine the level of readiness for college level work. Students must pass remedial courses within the first 24 hours attempted or have all subsequent enrollments restricted to remedial courses until the deficiencies are removed. If a student fails to remediate in a single subject within the 24 hour limit and is in good academic standing, the adviser and dean may recommend to the Provost that the student be allowed to continue to enroll in college level courses in addition to remedial courses.

1.2 Admission of Transfer Students. Policies and procedures governing the admission of transfer students are detailed in another section of the Catalog. (See "Undergraduate Admissions.")

1.3 Admission to Certain Professional Programs. Admission to certain programs as approved by the University may be restricted. (See "Undergraduate Admissions" and appropriate college sections in the Catalog.)

1.4 English Proficiency Requirement. As a condition of admission to undergraduate study at OSU, all persons for whom English is a second language shall be required to present evidence of English proficiency. (See "Undergraduate Admissions.")

1.5 Satisfactory Academic Progress. Students not under academic suspension from the University are judged to be making satisfactory progress toward their educational objectives. They are eligible to enroll in any of the undergraduate colleges except as may be restricted. (See Academic Regulation 1.3 Admission to Certain Professional Programs.)

1.6 Good Academic Standing and Scholaristic Requirements for Continuing Enrollment of a Student Under Academic Probation in an Undergraduate College. Undergraduate students must meet the GPA requirements below to be in good academic standing. Each college, department, or academic program within OSU may require higher standards for admission, retention, or good academic standing.

<table>
<thead>
<tr>
<th>Total retention/graduation</th>
<th>Minimum retention/graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours attempted</td>
<td>grade-point average required</td>
</tr>
<tr>
<td>0 through 30</td>
<td></td>
</tr>
<tr>
<td>31 or more</td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td></td>
</tr>
</tbody>
</table>

Any student not maintaining a retention/graduation GPA as indicated above will be placed on probation for one semester. At the end of that semester, he or she must have a semester GPA of 2.00, not to include activity or remedial courses, or meet the minimum standard required above, in order to continue as a student.
1.7 Academic Suspension. A student on probation will be suspended when he or she earns a semester GPA of less than 1.60 or 2.00 in regularly-graded course work not including activity or remedial courses, and the retention grade-point average for all hours attempted falls below the following:

<table>
<thead>
<tr>
<th>Total retention/graduation average for all hours attempted falls below</th>
<th>1.70</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 through 30</td>
<td></td>
</tr>
<tr>
<td>31 or more</td>
<td>2.00</td>
</tr>
</tbody>
</table>

1.8 Reinstatement after Academic Suspension. A student who has been suspended from the University for academic reasons may not be readmitted until one regular semester (fall or spring) has elapsed (unless the faculty appeals committee grants immediate reinstatement). Students who immediately reinstatement. Students who wish to appeal or represent their suspension status should inquire about procedures and deadlines from their advisor or the Office of Academic Affairs. Students who were concurrently enrolled in another college or university during the summer may appeal the suspension by submitting an official transcript from the institution. Procedures and deadlines for appealing may be obtained from the Office of Academic Affairs.

Readmission after one regular semester (fall or spring) has elapsed will be considered on the merits of the individual case. Suspending students can be readmitted only one time. If a student is suspended a second time, he or she must attend another institution and raise the retention/graduation GPA before readmission to OSU can be considered.

A student with 90 or more hours in a specified degree program who has been academically suspended may enroll, at the discretion of the institution, in up to 15 additional credit hours in a further attempt to achieve the requirements for retention. During these 15 hours of enrollment, the student must achieve a minimum 2.00 semester GPA at the end of each term or must raise the retention GPA to 2.00 or above to avoid suspension. This senior suspension exception must be approved by the Director of Student Academic Services or Associate Dean for Instruction in the student’s college in the form of a letter to the Registrar. This option can be exercised only once per student.

A student suspended from OSU at the end of the spring semester may continue in the summer semester at OSU if this spring suspension was the student’s first suspension. The student must complete a minimum of six hours and must achieve a 2.00 summer semester GPA, or raise the retention/graduation GPA to the OSRHE standard, in order to continue in the subsequent fall semester. The student should contact his or her dean’s office for additional information and restricted registration. (See also Academic Regulations 6.13 Academic Forgiveness.

1.9 Readmission. An undergraduate student who has attended OSU but was not enrolled during the immediate past semester (except the summer session) must submit an updated Application for Admission and current application fee. A student who has enrolled in another college or university since last attending OSU must submit a transcript from each school. Admission status will be determined after an evaluation of the previous work has been made.

1.10 Cancelling Enrollment and Withdrawing from the University. Enrollment cancellation occurs when a student drops all classes before classes begin, that is, before the applicable semester or session begins. Students requested to cancel enrollment must be received by the Office of the Registrar before the first day of classes for the term. Enrollment changes, such as cancelling enrollment or withdrawing from the University are the responsibility of the student. Failure to attend classes or nonpayment of tuition and fees does not constitute notice of cancellation.

Withdrawing from the University occurs when a student drops all classes after classes begin, that is, after the applicable semester or session begins. The withdrawal process is initiated with the student’s academic advisor or in the student’s academic student services office. International students must also consult with International Students and Scholars (ISS) before dropping courses or withdrawing for the semester. Under reporting regulations required by the Student and Exchange Visitor Information System (SEVIS), dropping below full-time can put a student’s visa status in jeopardy.

General cancellation and withdrawal periods are provided in the table below. The Academic Calendar provides specific dates for each term. Exceptions to these deadlines may be considered by petition due to documented extraordinary circumstances and committee approval. The Retroactive Drop/Withdraw Petition and the Petition for a Refund of Tuition and Fees are available on the Registrar website (registrar.okstate.edu).

Cancelling/Withdrawal Periods for Full-Semester (16-week) Courses

<table>
<thead>
<tr>
<th>Semester Time Period*</th>
<th>Withdrawal Transcript Notation for the Semester</th>
<th>Course Grade</th>
<th>Course-Related Tuition/Fee Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before term begins</td>
<td>No transcript record</td>
<td>No transcript record</td>
<td>100% refund</td>
</tr>
<tr>
<td>(cancellation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 6 days</td>
<td>&quot;Withdrawn&quot;</td>
<td>No transcript record of individuals</td>
<td>100% refund</td>
</tr>
<tr>
<td>Days 7-10</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot;</td>
<td>Partial refund</td>
</tr>
<tr>
<td>Weeks 3-12</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot;</td>
<td>No refund</td>
</tr>
<tr>
<td>Weeks 13-14</td>
<td>&quot;Withdrawn&quot;</td>
<td>&quot;W&quot; or &quot;F&quot; as assigned by instructor</td>
<td>No refund</td>
</tr>
<tr>
<td>Weeks 15-16</td>
<td>No withdrawal option</td>
<td>Final grade as assigned by instructor</td>
<td>No refund</td>
</tr>
</tbody>
</table>

*Summer courses, intersession courses, and other courses that do not extend through the entire 16-week semester follow proportionate cancellation/withdrawal/refund periods.

2. STUDENT STATUS

2.1 Classification of Students. Undergraduate classification is determined by the criteria below:

2.1.1 Freshman: fewer than 28 semester credit hours passed
2.1.2 Sophomore: 28 to 59 semester credit hours passed
2.1.3 Junior: 60 to 93 semester credit hours passed
2.1.4 Senior: 94 or more semester credit hours passed

2.2 Full-Time Students. Undergraduate students who are enrolled in 12 or more semester credit hours (six or more for the summer session) are classified as "full-time" students. Graduate students enrolled in nine or more semester credit hours (four or more for the summer session) are classified as "full-time." Credit hours offered through correspondence study are not counted toward full-time status, unless the course is independent study taken through regular enrollment.

Students engaged in an internship or cooperative education program assignment that requires full-time work on the assignment are regarded as full-time students when they are enrolled in the number of credit hours deemed appropriate for the academic credit they receive for the assignment.

A student holding a 0.50 FTE Graduate Teaching/Research Associate/Assistant ( GTA or GRAs) appointment who is enrolled in a minimum of six hours during the fall or spring semester and two hours during the summer will be classified as a full-time graduate student. Any FTE appointment less than 0.50 requires a minimum of enrollment for the fall or spring semester and four hours of enrollment for the summer semester in order for the student to be classified as a full-time student. There is no reduction in credit hour requirements in the final semester of enrollment for GTAs or GRAs.

A student enrolled for the final semester of a bachelor’s degree program may be classified as a full-time student if enrolled in fewer than 12 hours during that semester.

2.3 Part-Time Students. Students who are enrolled but not meeting the definition of full-time students are classified as "part-time." Undergraduate students are classified as "half-time" if they are enrolled in four hours in a regular semester (or three hours in a summer session). Graduate students are classified as "half-time" if they are enrolled in four hours in a regular semester (or two hours in a summer session).

2.4 Special Students. A student who does not have immediate plans to enter a degree program but wants to take courses may be classified as a "special student." A student on an F-1 visa may not enroll as a special student since he or she must be admitted to a degree program.

3. UNDERGRADUATE DEGREE REQUIREMENTS

3.1 Date of Matriculation. A student’s matriculation date is associated with his or her first term after high school graduation as an admitted student in an accredited institution of higher education. That date will be used in calculating the time limit for the use of a given plan of study.

3.2 Changes in Degree Requirements. A student generally follows the degree requirements associated with his or her matriculation year. Although the curriculum may be revised before a student graduates, students will be held responsible for the degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation. A student has the option...
of adopting the new degree requirements that have been established since matriculation. The time limit for following a given undergraduate degree program is six years. Time limits for graduate degrees are described under "Academic Regulations" in the "Graduate College" section of the Catalog.

3.3 The Honors College. (See the "Academic Enrichment Programs" section of the Catalog.)

3.4 General Education Requirements. Although the University has a general education program, each college determines and publishes the general education requirements for its degree programs. College requirements may exceed the minima for general education established by the University, which are 40 semester credit hours (exclusive of physical education activity courses by OSHRE policy):

a. six semester credit hours of English composition;

b. three semester credit hours of American history (HIST 1103 or equivalent), and three semester credit hours of American government (POLS 1113);

c. at least six semester credit hours in each of the approved general education designated areas of Analytical and Quantitative Thought (A), Humanities (H), Natural Sciences (N), and Social and Behavioral Sciences (S) (at least three hours of Analytical and Quantitative Thought must be earned in a general education Math course);

d. at least one course designated as International Dimension and one course in Scientific Investigation and, beginning in Fall 2008, one Diversity course.

Substitution of general education courses is allowed when background for the major demands greater depth in an area in which a general education requirement is stated. Only in the Analytical and Quantitative Thought (A) and Natural Sciences (N) areas is substitution of the more advanced lower-division course permitted. Such a substitution requires the recommendation of the student's academic adviser and dean and the approval of the Office of Academic Affairs.

Courses used to fulfill general education requirements are identified by code letters that appear preceding the course titles listed in the back of the Catalog and in the class schedule. The code letters designate the general education category for which the course may be used:

A  Analytical and Quantitative Thought

D  Diversity

H  Humanities

I  International Dimension

L  Scientific Investigation

N  Natural Sciences

S  Social and Behavioral Sciences

General education courses are also identified in the Student Information System (SIS) and on the Internet site maintained by the Office of the Registrar at registrar.okstate.edu.

The Oklahoma State Regents for Higher Education require computer science proficiency prior to graduation. This requirement could be met by:

a. successfully completing a high school computer science course that meets State Regents' high school curricular requirements;

b. satisfying an institution's computer proficiency assessment; or
c. successfully completing college-level course work that the institution designates.

The method by which a student demonstrates computer science proficiency at OSU varies by major. This requirement does not increase the number of courses required to earn a degree. The use of computers is an integral part of every degree program; hence a student demonstrates proficiency by satisfactorily completing degree requirements.

3.5 English Composition Requirement. The University requires a minimum of six semester credit hours in English composition for a baccalaureate degree. The required sequence of courses is ENGL 1113 and ENGL 1213. For those who qualify, ENGL 1123 or 1313 may be substituted for ENGL 1113. Students who earn an "A" or "B" in ENGL 1113 (or ENGL 1213 or 1313) who earn three semester credit hours in English composition through credit by exam, and who have the consent of their college, may substitute ENGL 3323 for ENGL 1213. Students who qualify may substitute ENGL 1223 or 1413 for ENGL 1213. A third course may be required by the student's college to satisfy either an additional composition or oral communication degree requirements.

3.6 Substitution of Required Courses. A course substitution is a specific course that takes the place of a required course on a degree plan because it meets the content and/or spirit of the requirement. Individual colleges have the authority to approve substitutions for required courses on degree plans with two exceptions: (1) Substitutions related to university general education requirements require approval from Academic Affairs (see Academic Regulation 3.4), with the exception of the English composition substitutions described in Academic Regulation 3.5; (2) A lower-division course may not be substituted for an upper-division course to meet degree requirements.

3.7 Waiving of Required Courses. A course waiver excuses a student from completing a required course on a degree plan because the student has fulfilled the requirement content of the course by completing other courses or academic experiences. A course waiver does not result in awarding credit hours and consequently does not reduce the number of semester credit hours required for the degree or for any other degree-related requirements. A maximum of six semester credit hours may be waived, and waiver approval is granted only in special circumstances. Required courses in English, American history and American government cannot be waived. Waivers must be approved by the student's adviser, the head of the student's major department and the dean of the college. Waivers involving university general education requirements must in addition be approved by Academic Affairs.

3.8 Changing Majors. Students are advised to select a specific major no later than the end of the sophomore year. Students on probation, or not making satisfactory progress toward a degree, may change majors only with the approval of the dean of the college in which they wish to pursue a different degree. Students should contact the office of Student Academic Services of his or her college concerning procedures and forms to change majors and/or minors.

3.9 Deadline for Completion of Requirements. Degrees are conferred only on specific commencement dates. If a student completes requirements for a degree after a commencement date, the degree will be granted at the next scheduled commencement after the student files a diploma application. (See Academic Regulation 7.8 Diploma Application.) The student may request a certified statement of completion of graduation requirements from the Office of the Registrar.

3.10 Second Baccalaureate Degree. A student who receives a baccalaureate degree from OSU may use all applicable courses toward a second baccalaureate degree. A minimum of 30 semester credit hours of additional work, including all requirements of the second baccalaureate degree, is required. An additional baccalaureate degree may not be earned in the same major as the first degree, even if the option is different. For example, it is not possible to earn both a BS degree in Sociology with an option in Anthropology and a BS degree in Sociology with an option in Applied Sociology. Completion of requirements for more than one option may be noted on the official transcript, but a second degree will not be awarded.

3.11 Double Majors and Minors. A double major can be earned by satisfying the field of concentration requirements for the second major and any additional departmental requirements. If the general education courses are met from one college, they do not need to be met for the second major if it is in another college. The second major does not necessarily require the minimum required for the first major. Whether additional hours are required generally depends upon the number of electives allowed by the first major and the degree of overlap between courses in the two fields of concentration.

Minors are available for many departments. A student should check with the department to find out what the requirements are to obtain a minor in that area. A list of current minors can be found in the "Degree Programs" section of the Catalog.

If a student majoring in one field also completes the specified requirements for a major or minor in other fields, the second major and/or additional minors will be noted on the student's transcript while in-progress. As a result, the second minor must be earned in an academic field other than the student's declared degree option. The minor may not duplicate the degree major or option (for example, a student who earns a BA in Art with an Art History option may earn a minor in Studio Art but not Art History).

The student should contact the office of Student Academic Services of the college in which the student is enrolled concerning procedures to have the additional major or minor recorded or removed.

3.12 Pre-Finals Week. Final examinations are scheduled at the end of each semester and are preceded by pre-finals week, which begins seven days prior to the first day of finals. During pre-finals week, all normal class activities will continue; however, no assignment, test or examination accounting for more than five percent of the course grade may be given; and no activity or field trip may be scheduled that conflicts with another class. This excludes makeup and laboratory examinations, out-of-class assignments or projects made prior to pre-finals week, and independent study courses. No student or campus organization may hold meetings, banquets, receptions, or may sponsor or participate in any activity, program, or related function that requires student participation. Additional information may be obtained from the student services office of each college or the Office of Academic Affairs.

3.13 Final Exam Overload. In the event that a student has three or more final exams scheduled for a single day, that student is entitled to arrange with the faculty member instructing the highest numbered course (based on the 4-digit course number) to reschedule that examination at a time of mutual convenience during final exam week. (Common final exams are not among those to be rescheduled unless two common exams are scheduled at the same time)

The affected student should submit this request in writing two weeks prior to the beginning of final exam week. In seeking to provide the student with a specific date, the faculty member may request that the student provide a copy of his or her schedule to confirm the difficulty. The faculty member has one week prior to the beginning of final exam week to arrange a mutually convenient time for administration of the final exam, after which the student may take the request to the Office of Academic Affairs.
4. CREDITS

4.1 Residence Credit. Residence credit is awarded for work taken on campus (not through correspondence or credit earned by examination) or at a location officially designated as a residence center by the governing board of the institution (e.g., in-state military bases and OSU courses at OSU-Tulsa.)

4.2 Credit Earned Through Outreach and Correspondence.

Outreach Credit. Outreach credit is earned by OSU-admitted students who complete credit courses offered during normal academic terms through OSU academic outreach programs. Outreach courses are also referred to as "electronically delivered" and "traditional off-campus courses and programs" in State Regents’ policy. OSU accepts transfer outreach credit from other accredited institutions. Outreach credit is fully applicable toward the satisfaction of requirements for specific degrees and certificates consistent with State Regents’ and institutional residence and degree requirements.

Correspondence Credit. Correspondence credit is earned by students who complete year-long correspondence study courses offered through OSU Correspondence Education. Admission to OSU is not required to earn correspondence credit. The student intends to apply the credits toward an OSU degree. OSU will accept, toward a degree, a maximum of eight transfer credits excepted in Academic Regulations 4.1 Residence Credit. An OSU undergraduate senior may take a limited number of courses for graduate credit toward an OSU degree program. The credits may not be utilized for both a baccalaureate degree and a graduate degree. The courses in question must be approved for graduate credit (denoted by an asterisk next to the course number as listed in the Catalog). The applicability of such graduate courses to a specific graduate program will be determined by the student’s graduate advisory committee when the student applies to the Graduate College and submits a plan of study for an advanced degree.

4.3 Transfer Credit from Other Accredited Four-Year Institutions. Except as excluded in Academic Regulations 4.4 Transfer of Credit from Community Colleges and 7.2 Residence Credit Requirements, credits transferred from accredited senior colleges will apply toward baccalaureate degrees in the same way that they would apply had they been earned in residence at OSU. Students may not use transfer credits to satisfy more than one-half the major course requirements for a department unless they have the approval of the head of that department and the academic dean.

4.4 Transfer Credit from Community Colleges. Credits will be accepted by transfer from a community college to meet lower-division (i.e., 1000- and 2000-level courses) requirements only. A minimum of 60 semester credit hours must be earned at a senior college. Within these guidelines, transfer credits are subject to the individual colleges’ degree requirements.

4.5 Transfer Credit from International Colleges and Universities. Credit is accepted based on equivalent standards as outlined in Academic Regulations 4.3 and 4.4. Credit is accepted based on the U.S. letter grade equivalents for the post-secondary grading method used in each country of study.

4.6 Credit by Exam. The academic regulations listed below apply to the following examinations: Advanced Placement Program (AP), International Baccalaureate Program (IB), College Level Examination Program (CLEP), and OSU Advanced Standing Examinations.

a. credit earned by examination will not be placed on a student's transcript unless he or she is currently enrolled and has successfully completed 12 or more semester hours of academic credit at OSU;

b. credit will be recorded with a neutral grade of "P" (Pass) if the student earns the equivalent of a "C" or better on the examination. No grade is recorded if the student fails the exam;

c. credit earned by examination does not count toward the minimum of 30 hours that must be earned in residence (See Academic Regulation 7.2 Residence Credit Requirements).

d. a native speaker of a foreign language (one whose high-school level instruction was conducted principally in that language) cannot earn credit toward graduation in lower-division (1000-2000 level) courses in that language (See Academic Regulation 4.9 Foreign Language Credit for Native Speakers);

OSU Advanced Standing Examinations may be offered by academic departments on campus in subject areas not offered through the examination programs listed above. Any currently enrolled student whose travel, employment, extensive readings or educational experience appear to have given the student proficiency in a subject that is offered at OSU, equivalent to the proficiency ordinarily expected of those students who take the subject in a regular class, may apply for an examination on the subject.

In addition to the regulations listed above, to qualify for an OSU Advanced Standing Examination the student must:

a. be enrolled at OSU;

b. have taken an Advanced Standing exam over the course within the preceding six months;

c. receive the approval of the head of the department and the associate dean in which the course is offered;

d. present a valid student I.D. at the examination.

Information pertaining to OSU Advanced Standing Examinations may be obtained from the Office of Undergraduate Admissions.

Military Credit. OSU awards credit as recommended by the American Council on Education (ACE), as published in "The Guide to the Evaluation of Military Experiences in the Armed Services," for selected educational experiences provided by the armed forces. OSU also accepts credit earned through the Defense-Military Subject Standardized Tests for active military personnel.

Students who wish to establish credit for military training should submit a copy of their DD214, Armed Forces of the United States Report of Transfer or Discharge, or their DD295, Application for the Evaluation of Educational Experiences During Military Service, to the Office of Undergraduate Admissions. Course Completion Certificates may be used to supplement other records or when service schools are not reflected on the DD214 or 295.

An official AARTS Transcript (Army/ACE Registry Transcript Service) is available to Army enlisted, active duty personnel, and veterans who entered the service after October 1, 1981. An official SMART transcript (Sailor/Marine ACE Registry Transcript) is available to active duty and reserve Sailors and Marines, Navy veterans who separated or retired after January 1975, and Marines who separated or retired on or after June 1999.

Training Programs. OSU awards credit as recommended by the American Council on Education (ACE) in the "National Guide to Educational Credit for Training Programs." Students may present certificates of completion or a transcript from the ACE Registry of Credit Recommendations to the Office of Undergraduate Admissions for evaluation. OSU also awards credit based on the recommendation of the Board of Regents of the University of the State of New York in the "Director of the National Program on Non-collegiate Sponsored Instruction."

4.7 Graduate Credit Hours for a Senior. An OSU undergraduate senior may take a limited number of courses for graduate credit toward an OSU degree program. The credits may not be utilized for both a baccalaureate degree and a graduate degree. The courses in question must be approved for graduate credit (denoted by an asterisk next to the course number as listed in the Catalog). The applicability of such graduate courses to a specific graduate program will be determined by the student’s graduate advisory committee when the student applies to the Graduate College and submits a plan of study for an advanced degree.

To receive credit, a Graduate Credit for Seniors form must be completed by the student to receive graduate credit for courses taken. This form must be submitted to the Graduate College prior to the end of the second week of class in the first quarter of a regular semester, or the first week of a regular summer session. The required form is available on the Graduate College’s Internet site or in the Graduate College.

Such credit may be earned only if the following conditions are satisfied at the time of application:

1. Students must have a minimum cumulative graduation/retention undergraduate GPA of 3.00.

2. The total enrollment must not exceed 18 credit hours for a regular semester or nine credit hours for a summer session.

3. The student must be within 12 semester credit hours of completing requirements for the baccalaureate degree at the beginning of the semester or summer session in which courses are taken for graduate credit.

4. Admission to courses taken for graduate credit must have approval of the course instructor, the director of the undergraduate student services office associated with the student’s major, and the dean of the Graduate College.

Not more than 15 semester credit hours taken while a senior may be approved for graduate credit. The student must earn a grade of "B" or higher in those courses for which he or she seeks graduate credit. Credit will be applied to the student’s OSU graduation only after the student has been admitted as a graduate student at OSU. Students are cautioned that institutions other than OSU may or may not allow courses taken for graduate credit during the senior year to be transferred into one of their graduate programs.

4.8 Semester Credit Hour. 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.

4.9 Foreign Language Credit for Native Speakers. A native speaker of a foreign language cannot enroll in or earn credit toward graduation in lower-division (1000- or 2000-level) courses in that language. A native speaker of a foreign language is defined as a person whose high-school level instruction was conducted principally in that language. Soviet and Eastern European languages are not reflected on the DD214 or 295.

Native speakers may occasionally have valid reasons for establishing credit in a lower-division course. Requests for such consideration should be directed to the dean of the student’s college for recommendation to the head of the Department of Foreign Languages and Literatures.

5. ENROLLMENT

5.1 Course Numbering System. 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 as to student classification; the second and third digits identify the course within the field; and the last digit indicates the number of semester credit hours the course carries. For example, a course numbered 1123 should be interpreted as a freshman,
or beginning, level course carrying three hours of credit. A course number beginning with zero indicates that the course does not carry University credit. A course number ending in zero indicates that the course carries variable credit.

Graduate Sections of Mixed Credit 3000 or 4000-level Courses (Undergraduate courses that are approved for graduate credit). Some courses have been approved to be offered for both undergraduate and graduate credit. These 3000 and 4000-level courses are identified by an asterisk next to the course number in the Catalog. A student must perform additional assignments at an intellectual level commensurate with graduate level work as specified in the course syllabus to earn graduate credit for such a class. The instructor for any course that graduate credit is received must be a member of the Graduate Faculty. Beginning fall 2010, mixed courses which are available for both undergraduate and graduate credit are identified as to which type of credit is being offered through the use of different section numbers for each type of credit.

Undergraduate sections are denoted by section numbers that are wholly numeric and graduate sections contain the letter ‘G’ in the section number, usually in the last digit. For example, any semester in which PHYS 4513 (Introductory Quantum Mechanics) is offered for graduate credit at least two sections may be open. PHYS 4513-001 and 4513-002 is for students seeking graduate credit. Both sections meet at the same time, on the same days, in the same classroom, with the same instructor.

5.2 Maximum Semester Credit Hour Load.

Undergraduate students are allowed to enroll in the number of credit hours each semester that do not result in academic overload, which is defined as the number of semester credits which is 50 percent or more than the number of weeks in the applicable academic term. See the "Graduate College" section of the Catalog for graduate student enrollment information.

Undergraduates desiring to carry an academic overload must have demonstrated readiness to perform on an overload basis, either through superior performance on a college aptitude test or on the basis of superior academic achievement in high school or college, and must complete a Petition for Excessive Hours (available in the Office of the Registrar). The maximum academic overload in any given term is limited to the number of semester-credit-hours which is 50 percent greater than the total number of weeks in the applicable academic term. Exceptions to deserving students may be granted by the Office of Academic Affairs.

In a regular 16-week Fall or Spring semester, the maximum enrollment for undergraduates without special approval is 18 credit hours. Enrollment in 20 to 24 credit hours results in academic overload, which requires a Petition for Excessive Hours. Enrollment in 25 or more credit hours requires both a Petition for Excessive Hours and approval by the Office of Academic Affairs.

Proportionate credit-hour limits apply to summer sessions and intersession periods separately.

5.3 Adding Courses.

The sixth class day of a regular semester or the third class day of an eight-week summer session, or the proportionate period for block or short courses is the last day a course may be added (nonrestrictive). With instructor and academic advisor approval, a course may be added during the second week of class (seventh through tenth class days) of a regular semester or the fourth or fifth class day of an eight-week summer session, or the proportionate period for block or short courses (restrictive).

5.4 Dropping Courses.

Dropping refers to the dropping of one or more courses while remaining enrolled in at least one other OSU course for a given semester. Courses may not be dropped without the approval of the student's academic advisor. Enrollment changes, such as dropping courses, are the responsibility of the student. Failure to attend classes or nonpayment of tuition and fees does not constitute dropping a course.

General drop periods are provided in the table below. The Academic Calendar provides specific dates for each term. Exceptions to these deadlines are considered by petition due to documented extraordinary circumstances and committee approval. The Retroactive Drop/Withdraw Petition and the Petition for a Refund of Tuition and Fees forms are available on the Registrar website.

### Periods for Dropping Full-Semester (16-week) Courses

<table>
<thead>
<tr>
<th>Semester Time Period</th>
<th>Course Grade</th>
<th>Course-Related Tuition/Fee Refund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before term begins</td>
<td>No transcript record</td>
<td>100% refund</td>
</tr>
<tr>
<td>Days 1-5</td>
<td>No transcript record of individual courses</td>
<td>100% refund</td>
</tr>
<tr>
<td>Days 6-10</td>
<td>&quot;W&quot; Partial refund</td>
<td></td>
</tr>
<tr>
<td>Weeks 1-2</td>
<td>&quot;W&quot; No refund</td>
<td></td>
</tr>
<tr>
<td>Weeks 3-16</td>
<td>No drop option - Final grade as assigned by instructor</td>
<td>No refund</td>
</tr>
</tbody>
</table>

*Summer courses, intersession courses, and other courses that do not extend through the entire 16-week semester follow proportionate drop/refund periods.

A student may not drop any course in which a violation of academic integrity is pending against the student. If the student admits responsibility for a violation meritng a grade of "F" for an assignment or examination, the instructor or Academic Integrity Panel may permit the student to drop the course with a grade of "W" if the student is found not responsible for the violation, he or she may drop the course with either a "W" or "F" (according to the drop grade policy) appearing on the academic record. If the student is found responsible for the violation, the instructor may assign an appropriate sanction, including assigning the grade of "F" for the assignment/examination or "F" for the course. (See Policy and Procedures Letter 02-0822).

International students need to consult with International Students and Scholars (ISS) before dropping courses or withdrawing for the semester. Under reporting regulations required by the Student and Exchange Visitor Information System (SEVIS), dropping below full-time can put a student's visa status in jeopardy.

5.5 Concurrent Enrollment.

A student who desires to earn credits concurrently at another institution or through correspondence, or DANTES (Defense Activity for Non-traditional Education Support) examinations while enrolled for residence credit at OSU, must secure approval in advance from his or her dean if he or she expects this institution to accept those credits. A student in the Armed Forces personnel will be granted 60 days from the date of their first enrollment to establish, through DANTES examinations, advanced standing in subject matter that they mastered while in the Armed Forces.

5.6 Course Prerequisites.

Course prerequisites are listed in the course descriptions section of the University Catalog. When no prerequisites are listed for a course it is meant that the course has no prerequisites. In no instance is the prerequisite of the student's academic adviser. The prerequisite for courses at the 5000 or 6000 level is standing in addition to any other prerequisites listed. Instructors may waive prerequisites when the student's background warrants such a waiver. This action. Prerequisites for lower-division courses may also be waived by a student's academic adviser if examination of the student's academic record warrants such a waiver. Prior approval of the instructor may be required in problems courses, independent study, internship, thesis and dissertation courses, and courses taught in a professional school.

5.7 Class Enrollment Maxima.

The maximum number of students permitted to be enrolled in each section of a course is determined by the department head and can be increased or decreased only by the department head or dean. Graduate students: the maximum number of students permitted in an honors section is 22 students. The director of The Honors College may slightly increase or decrease the size of some honors sections. The number of students enrolled in a class may not exceed the fire code capacity of the designated classroom.

5.8 Priority Enrollment.

Currently enrolled/continuing students register for summer and fall classes during the latter part of the preceding spring semester, and for spring classes during the latter part of the fall semester. In order to facilitate access to courses required for timely degree completion, a student's priority for enrollment generally follows academic class level with seniors having the highest priority. Some exceptions to this basic priority may be necessary to accommodate bona fide student needs, such as a special priority for physically disabled students. The Office of Academic Affairs determines enrollment priorities, and enrollment schedules and priorities are posted in the enrollment guide located on the Registrar's website at registrar.okstate.edu.

Full-time staff members may utilize priority enrollment to help ensure they are given an opportunity to identify a section(s) at a time that best disrupts work in the office. This benefit of priority enrollment is extended to full-time (100% FTE), regular staff members. Staff members employed at less than one hundred percent are not eligible for priority enrollment.

5.9 Late Enrollment.

Students are allowed and encouraged to enroll well before the beginning of a given term (fall, spring, summer). Students whose initial enrollment for the term occurs on or after the first day of the term will be charged a late enrollment fee. A student is permitted to add classes after initial enrollment without a late enrollment fee during the first two weeks of a 16-week semester or through the fifth day of an eight-week summer session or during proportionate periods for block or short courses. See the "Tuition, Fees, and Cost Estimates" section of the Catalog for the current late enrollment fee amount.

5.10 Payment of Tuition and Fees.

Oklahoma State University (OSU) combines enrollment costs and charges from different areas on campus into one consolidated student account. By enrolling/registering in classes, students accept the responsibility of the costs associated with the courses unless dropping/withdrawal occurs by the published dates to receive credit. The Bursar Office generates a monthly electronic billing statement (e-bill) on the last business day of every month detailing charges, credits, and payments that occurred during the month. A billing email notification is sent to the student's OSU email address at the beginning of each month when the billing statement is available to view online. An alternative email address and authorized users may be set up by the student through the Student Information System under "Payment Info" by clicking "Bursar Services" if someone other than the student should also receive billing notifications. Authorized user login access is located through the bursar website at http://bursar.okstate.edu.

Payment is due no later than the 15th of each month. All tuition and fees (mandatory and optional) and other charges are considered past due if not paid by the 15th of the billing month. Late fees and holds can be avoided by paying
6. GRADES AND GRADING

6.1 Official Transcripts. All official transcripts of the student's academic record at OSU are prepared and released by the Office of the Registrar. Copies of transcripts from other institutions cannot be furnished.


Descriptions of the grades are provided below. For graduate students, a grade of "D" or "F" is considered a failing grade. Additional consequences and/or requirements for graduate students receiving "C," "D," and "F" grades also exist in most graduate programs. Irrespective of letter grades received, a cumulative 3.00 GPA must be maintained. See the "Graduate College" section of the Catalog.

C. Undergraduate

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>Below average</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
</tr>
<tr>
<td>FI</td>
<td>Falsification</td>
</tr>
<tr>
<td>IP</td>
<td>Incomplete</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
</tr>
<tr>
<td>WI</td>
<td>Withdrawal Incomplete</td>
</tr>
<tr>
<td>UR</td>
<td>Unreported</td>
</tr>
</tbody>
</table>

*Incomplete* Grade. This grade is given to a student who satisfactorily completes the majority of course work (i.e., material amounting to more than 50% of the course grade as outlined in the course syllabus) and whose work has been graded "D" or better, but who has been unable to complete the remaining work of the course. The grade is considered temporary. When the instructor specifies the conditions the student must fulfill in order to complete the course, the grade will reflect the percentage of work completed by the student as well as the grade earned on the completed work. This will be the projected grade if the student received a zero for the remaining course work, with the "I" representing the incomplete status of the course. Neither a grade of "IA," "ISR," nor a condition that the student must repeat the course, is permitted. The "composite incomplete" grade ("IB," "IC," "ID," "IF," or "IUR") will reflect the percentage of work completed by the student as well as the grade earned on the completed work. This will be the projected grade if the student received a zero for the remaining course work, with the "I" representing the incomplete status of the course. Neither a grade of "IA," "ISR," nor a condition that the student must repeat the course, is permitted. The "composite incomplete" grade ("IB," "IC," "ID," "IF," or "IUR") will be recorded on the final grade form and on the unofficial transcript until the final grade is assigned. The official academic transcript will reflect an "I" grade for the course until the final grade is assigned.

The maximum time allowed for a student to complete the course is one calendar year after the end of the semester for which the incomplete grade was awarded. The dean of the student's college (for graduate students, this is the Graduate Dean) may recommend to the Office of the Registrar an adjustment of this period in exceptional circumstances, which must be clearly documented with supporting evidence when deemed appropriate. Instructors have the prerogative to require a shorter period of time to complete the remaining requirements.

5.11 Auditing Courses. A student who does not wish to receive credit in a course may enroll as an auditor, provided space is available and the student obtains approval from the instructor of the course and his or her adviser. (Note: Adviser permission is only required for currently enrolled students.) A student who enrolls as an auditor must verify that he or she will not petition to receive credit from audit to credit for the audited course by any method other than that described below under "Audit to Credit." Auditor discretion is used to determine the auditor's level of class participation, such as taking exams or turning in assignments.

Audited courses do not count in the determination of full-time student status and do not apply toward Veterans Affairs benefits. Laboratory courses, private music lessons, studio art courses, outreach courses, and other courses that require special course fees are not open for audit enrollment.

The audit enrollment form is available on the Office of the Registrar website (registrar.okstate.edu). Initial enrollment in a course as an auditor may be completed only between the first and the tenth class day (inclusive) of a 16-week semester and proportionate periods for shorter sessions.

**Audit to Credit.** The allowable time to change from audit to credit enrollment is between the first and tenth class day (inclusive) of a 16-week semester and proportionate periods for shorter sessions. Students changing enrollment status from audit to credit must have been admitted to OSU.

**Credit to Audit.** A student who is already enrolled for credit in a course may change the enrollment to audit only if the student officially drops the course (or, if approved, withdraws) at the time the student changes to audit. This action is not allowed after the drop/withdraw deadline for the course. The audit action will not remove the original course withdrawal notation from the student's transcript.

Audited courses appear on a student's official transcript with an indication that the course was an audit enrollment. An "AU" appears where the grade would normally appear. The "AU" does not contribute to a student's GPA, and no credit hours are awarded for the course.

Audit enrollments follow the same resident and non-resident tuition and fee policies as credit enrollments. Late enrollment fees are waived for audit enrollments. Any individual 65 years or older may audit a class at no charge. The audit tuition and fees are also waived for faculty and staff who have retired from the University under the Oklahoma Teacher Retirement System's "Rule of 80" or "Rule of 90" regardless of age at time of retirement (OSU Policy 2-0108).

5.12 Minimum Class Size. The minimum number of students required in order for a class to meet is as follows: 20 students for lower-division classes, 12 students for upper-division classes, and eight students for graduate-level classes.
Upon completion of any or all of the remaining requirements, or at the end of the one-year period (whichever occurs first), the temporary grade on the transcript is changed to reflect the final grade for the course (e.g., "IC" is changed to "B" on the unofficial transcript, and "I" is changed to "B" on the official transcript). Any course in which none of the remaining requirements are fulfilled will, after one year, have the incomplete grade changed to the default grade (e.g., "IC" or "I" is changed to "C"). If the student opts to graduate prior to the end of the one-year period and if the course is required for graduation, the remaining course requirement must be completed and the final grade assigned by the deadline for course work completion for his or her final graduating semester. If the course is not required for graduation, the standard completion time limits apply. When the temporary incomplete grade is replaced with the permanent grade, this action is not considered a violation of the policy that states a grade will not be lowered after graduation.

An incomplete grade that was assigned prior to the Fall 2008 semester and is not changed within the designated time limit remains a permanent "I" grade on the transcript.

Grade "NP." This grade is given for unsatisfactory work (including that evaluated as "D") in courses on the pass-no pass grading system. Both credit hours and grade points are ignored in calculating grade-point averages.

Grade "P." This grade is given for passing work in OSU courses approved for pass-no pass and pass-fail grading systems. Both credit hours and grade points are ignored in calculating grade-point averages.

Grade "S" or "U." This grade is given for satisfactory (equivalent to a "C" or better) or unsatisfactory work in remedial courses in English, mathematics, reading, and science. Both credit hours and grade points are ignored in calculating grade-point averages, and neither grade is counted in total hours.

Grade "W." This grade indicates that the student dropped the course.

Grade "R." This grade is given to a student in a master's degree creative component course, and other courses as appropriate, when course work is still in progress. It is the responsibility of the instructor to initiate action to have a permanent letter grade entered as soon as possible after the student completes the course work.

Grade "SR" or "UR." These grades are given for satisfactory and unsatisfactory work, respectively, in thesis or dissertation courses (5000 or 6000). Both credit hours and grade points are ignored in calculating grade point averages, but courses in which a grade of "SR" is earned may be used toward minimum degree requirements.

Mark of "AU." An "AU" indicates that the student enrolled as an auditor in the course. An "AU" is not a grade and is not used in calculating grade-point averages.

Mark of "N." An "N" indicates that at the time grades were due in the Office of the Registrar, a final grade was not reported by the student's instructor. An "N" is not a grade and will be changed to the grade earned within a reasonable time. It is not used in calculating grade-point averages.

6.3 Grade-Point System. The following grade-point system is used in calculating the grade-point average.

Grade "A" yields 4 grade points per semester credit hour. Grade "B" yields 3 grade points per semester credit hour. Grade "C" yields 2 grade points per semester credit hour. Grade "D" yields 1 grade point per semester credit hour. Grade "F" yields 0 grade points per semester credit hour.

6.4 Grade-Point Average Calculating. In calculating grade-point averages, the total number of grade points earned is divided by the total number of hours attempted. The grade of "I," "NP," "P," "S," "U," "W," "R," "SR," "UR," or the mark of "AU" or "N" will not affect the grade-point average.

Semester Grade-point Average. For purposes other than retention, all grades are included in the calculation. For retention purposes, activity, remedial and research courses are excluded from the calculation. These courses remain on the transcript with a notation that they are excluded from the GPA.

Retention and Graduation Grade-point Averages. All courses in which a student has a recorded grade are included in the calculation, except any courses repeated (with an original grade of "D" or "F") or reprinted based on State Regents policy and excluding remedial courses and physical education activity courses. (See Academic Regulation 6.13 Academic Forgiveness.)

Cumulative Grade-point Average. All courses in which a student has a recorded grade are included in the calculation.

6.5 Six Week Progress Reports. Faculty are expected to report six week progress grades for all students (regardless of classification) enrolled in 1000- and 2000-level classes and are encouraged to submit six week grades for students in all courses. This will normally occur shortly after the sixth week of classes. Student will have all six week grades reported, not just 1000- and 2000-level. Progress reports are made available to students and to the students' advisors through the computer (SIS) website.

6.6 Pass-No Pass Grading System. An undergraduate student may elect to take no more than four courses or 15 hours (whichever is greater) during his or her academic career with the pass-no pass grading option. The option is restricted to those students who:

a. have passed 28 or more semester credit hours;

b. have at least a 2.50 grade-point average in all hours attempted;

c. have met all of the prerequisites for enrollment in the course in question;

d. do not need the course in question for meeting any requirements for graduation or certification other than as a general (unrestricted) elective;

e. have approval of the academic adviser.

A student who chooses the pass-no pass option must do so by the last date on which the course may be added. Once the deadline has passed, a student may not change the choice of grading systems. The pass-no pass option is not identified on the official class roll and thus is not known to the instructor. The instructor assigns a normal grade based on the quality of the work performed. The grades of "A," "B," and "C" are recorded on the transcript as "P"; the grades of "D" and "F" are recorded as "NP." "W" and "I" grades are recorded without change. The pass-no pass grade will not affect the grade-point average. Graduate students should refer to the "Graduate College" section of the Catalog.

6.7 Pass-Fail Grading System. Some courses are taught only on a pass-fail basis. Such courses are so designated in the "Course Descriptions" section of the Catalog. Students who pass the course are awarded the grade of "P"; those who fail the course are awarded the grade of "F." Graduate students should refer to the "Graduate College" section of the Catalog.

6.8 Grade Reports. Reports of the final grades of all students are compiled shortly after the end of each semester and are made available electronically to the students, the students' advisers and the students' deans via the Student Information System.

6.9 Correcting Grades Reported in Error. The only permitted reasons for changing a final grade are to correct a grade that was reported in error, to remove an incomplete grade, or to change a grade at the direction of the Academic Integrity Panel. Assign grades earned in cases in which he or she believes the grade awarded is inconsistent with announced grading policy. (See "Student Rights and Responsibilities" or contact the Office of Academic Affairs.)

6.10 Grade Appeals. A student may appeal a grade given by an instructor in cases in which he or she believes the grade awarded is inconsistent with announced grading policy. (See "Student Rights and Responsibilities" or contact the Office of Academic Affairs.)

6.11 Honor Rolls. Full-time students. Full-time undergraduate students (12 or more semester credit hours in a regular semester or six or more in a summer session) who complete at least 12 enrolled hours (or six in a summer session) with a cumulative grade-point average of 4.00 (i.e., all "A's") are placed on the President's List of Distinguished Students. The grade of "P," "S," or "W" grades earned through correspondence may not be included in meeting the minimum enrollment required or grade-point average required for an honor roll. Students who have completed their courses under the same requirements as above, with a grade-point average of 3.50 or higher and no grade below "C," are placed on the Dean's List of Distinguished Students. (See also Academic Regulation 6.4 Grade-point Average Calculating.)

Part-time Students. Part-time undergraduate students (11 or fewer semester credit hours in a regular semester or five or fewer in a summer session) who have completed at least 12 credits in a regular semester or 6 credits in a summer session, have completed their courses under the same requirements as above, with a grade-point average of 4.00, (i.e., all "A's") are placed on the President's List of Distinguished Students. The grade of "P," "S," or "W" grades earned in courses approved for pass-no pass grade will not affect the grade-point average. Part-time students who have completed their courses under the same requirements as outlined above, with a combined grade-point average of 3.50 or higher and no grade below "C," are placed on the Dean's List of Distinguished Students. (See also Academic Regulation 6.4 Grade-point Average Calculating.)

Once a part-time student is placed on an honor roll, the student must complete an additional 12 semester credit hours before the student is considered again for an honor roll. The student must meet all the above criteria at the time of subsequent consideration.

6.12 Violation of Academic Integrity. Oklahoma State University is committed to maintaining the highest level of academic integrity and ethical behavior. It is necessary for all members of the Oklahoma State community to uphold the highest standards of honesty and responsibility appropriate for an academic community. Not only does such academic integrity and ethical behavior contribute to the status of the University, but it also represents an important component of the educational process that will assure a high level of intellectual and ethical behavior by students who violate academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized access to examinations, altering or destroying the work of others, and fraudulently altering academic records) will not be condoned nor tolerated. Violations may subject the student to disciplinary
action including the following: receiving a failing grade on an assignment, examination, or course; receiving an “F*” notation of a violation of academic integrity on the transcript; and suspension from the University. In the event an incident is not resolved at the time grade reports are due to the Registrar (e.g., an alleged violation is discovered during the final examination period), the instructor will assign an incomplete grade until the allegation is resolved. (See also academicintegrity.okstate.edu)

6.13 Academic Forgiveness (Undergraduates).

Repeated Courses. A student shall have the prerogative to repeat a course and have only the second grade, even if it is lower than the first grade, included in the calculation of the retention/graduation grade-point averages up to a maximum of four courses but not to exceed 18 credit hours in which the original grade was a "D" or "F." If a course is repeated more than once, all grades except the first attempt are included in the grade-point averages. The original course and grade remain on the transcript identified with a statement under the course “Repeated (excluded from GPA).” All other repeated courses, those in excess of the 18-hour, four-course maximum and those with a grade of "C" or better in the original course, are included in the grade-point averages and identified with a statement under the course “Repeated (included in GPA).”

Academic Reprieve. A currently enrolled student may request an academic reprieve for all courses in one semester or two consecutive semesters if the following conditions are met: (a) at least three years must have elapsed between the period in which the grades being requested reprieved were earned and the reprieve request; (b) the student must have earned a GPA of 2.00 or higher with no grade lower than a "C" in all regularly graded course work (a minimum of 12 hours) excluding activity, performance and remedial courses since the semester requested to be reprieved; (c) the student has not previously been granted an academic reprieve for a course; (d) the student has extenuating circumstances which caused the student to perform poorly during the semester. The request for an academic reprieve must be submitted on the appropriate form to the Associate Vice President for Undergraduate Education. A committee appointed by that office reviews each request and either approves or denies a request based on whether or not the student meets the conditions stated above and on the committee's judgment concerning the extenuating circumstances reported by the student. The courses for a semester that is reprieved are excluded from the retention and graduation grade-point averages and identified with a statement under the course “Reprieved (excluded from GPA).”

Academic Renewal Policy. A student may request an academic renewal for all courses if the following conditions are met: (a) at least five years must have elapsed between the last semester being renewed and the renewal request; (b) prior to requesting academic renewal, the student must have earned a GPA of 2.00 or higher with no grade lower than a "C" in all regularly graded course work (a minimum of 12 hours) excluding activity, performance and remedial courses since the semester requested to be reprieved; (c) the student has not previously been granted an academic reprieve for a course; (d) the student has extenuating circumstances which caused the student to perform poorly during the semester. The request for an academic renewal must be submitted on the appropriate form to the Associate Vice President for Undergraduate Education.

7. GRADUATION

7.1 Graduation Requirements. The responsibility for satisfying all requirements for a degree rests with the student. Advisers, faculty members and administrators offer help to the student in meeting this responsibility.

7.2 Residence Credit Requirements. Students must earn at least 30 semester credit hours at OSU. At least 15 of the final 30 hours applied toward the degree or at least fifty percent of the upper-division hours required by OSU in the major field must be satisfactorily completed at OSU. In the Spears School of Business, a minimum of 15 of the last 30 hours applied toward the degree and at least 50 percent of the upper-division hours required in the major field must be satisfactorily completed at OSU.

7.3 Residence Waiver for Certain Premedical and Prelaw Students. Students who complete at least 90 semester credit hours in a recognized premedical science or prelaw preparatory program and are admitted to a professional program leading to the doctoral degree at an accredited professional school, including medicine, osteopathic medicine, chiropractic medicine, veterinary medicine, dentistry, optometry, pharmacy, physical therapy, podiatry, and law, will be awarded the appropriate baccalaureate degree upon the successful completion of 30 semester credit hours in professional school courses applicable to the OSU major. This option is available only to students who have completed all other degree requirements for the major, have taken at least the last 30 semester credit hours of work at OSU prior to transferring to a professional school (See Academic Regulation 7.2 Residence Credit Requirements), and have completed at least 60 semester credit hours at a baccalaureate institution (See Academic Regulation 4.4 Transfer Credit from Community Colleges). Credits from accredited professional schools that are part of baccalaureate degree-granting institutions will satisfy the 60 semester credit hour requirement.

7.4 Minimum Hours for Graduation. Each degree program requires a specific minimum number of semester credit hours for graduation, as indicated in the Catalog. No degree program shall require fewer than 120 semester credit hours for graduation. By OSRHE policy, these 120 hours are exclusive of physical education activity courses (leisure activity courses.) No student shall be permitted to graduate having completed fewer than 120 total hours unless the requirement specified for that degree. At least 40 hours of upper-division course work shall be required in every baccalaureate degree program. (By OSRHE policy, these 40 hours are exclusive of physical education activity courses.) A minimum of 30 hours is required in the major field. Of these 30 hours, at least 15 hours must be upper division. Hours of “S” or “U” earned in remedial courses may not count toward total hours.

7.5 Grade-Point Average for Graduation. A retention/graduation grade-point average of 2.00 or higher is required for all courses in which a student has a recorded grade, excluding any courses repeated or reprieved and excluding remedial courses and physical education activity courses. (See Academic Regulation 6.13 Academic Forgiveness.) This is in addition to the 2.00 or higher grade-point average required by the department in the major or minor fields.

7.6 Payment of Graduation Fees. Basic graduation cost is included in the records maintenance fee.

7.7 Requirements for Honors Degrees. The individual colleges have specific requirements for degrees with honors. Students should consult the office of their academic dean for information. (See the "Academic Enrichment Programs" section of the Catalog.)

7.8 Diploma Application. All degree candidates must submit a diploma application (online via SIS or with the Office of the Registrar) before or during their final semester to be eligible for graduation. Undergraduates must be classified as a senior before they can submit a diploma application, and graduate students must have filed an approved Graduate Clearance Form with the Graduate College before they are eligible to submit a diploma application. Students must submit their diploma application by November 1 for their name to appear in the fall commencement program, and by April 1 for spring and summer graduate names to appear in the spring commencement program. Students who will complete all degree requirements in the summer should file their diploma application for the summer term, but are invited to participate in the spring commencement ceremony. Students who have filed a diploma application and need to modify their expected graduation term should file a Diploma Application Extension form with the Office of the Registrar. This form allows you to change the expected graduation term on your diploma application, and allows you to register for classes in the following semester.

7.9 Presence at Commencement Exercises. The University will hold Commencement exercises at the close of the fall semester and at the close of the spring semester. Students who plan to meet the graduation requirements at the close of the following summer session are invited and encouraged to participate in the Commencement exercises at the close of the previous spring semester. The University encourages all candidates for degrees to be present at the Commencement exercises. Attendance is not compulsory.

7.10 Graduation with Distinction. Students who earn an OSU undergraduate degree may also earn a level of distinction based upon the final retention/graduation grade-point average. (See also Academic Regulation 6.4 Grade-point Average Calculating) The level of distinction added to the diploma and transcript is:

<table>
<thead>
<tr>
<th>Grade-point average</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.90 to 4.00</td>
<td>Summa cum laude</td>
</tr>
<tr>
<td>3.80 to 3.89</td>
<td>Magna cum laude</td>
</tr>
<tr>
<td>3.70 to 3.79</td>
<td>Cum laude</td>
</tr>
</tbody>
</table>

This grade-point average calculation is two decimal places only, e.g., 3.69. In actuality, this GPA may be 3.69785 if additional digits were to be added. However, the value used to determine distinction is 3.69, which does not qualify for a level of distinction.

7.11 Professional Education. Professional Education requires a minimum 2.50 GPA for admission to Professional Education, student teaching and graduation. This requirement is consistent with state standards for students who complete professional education programs and seek licensure in the state of Oklahoma.

2014-2015 University Catalog
The College of Agricultural Sciences and Natural Resources (CASNR) is the academic unit of the Division of Agricultural Sciences and Natural Resources, and offers outstanding undergraduate and graduate programs that are recognized at the state, regional, national and international levels. In collaboration with the Oklahoma Cooperative Extension Service (OCES) and the Oklahoma Agricultural Experiment Station (OAES), CASNR faculty provide great breadth and exceptional quality in teaching, advising, research, extension and service.

CASNR’s academic programs prepare students to analyze information, communicate effectively, think critically, problem solve, and assume leadership roles in their respective fields of study. Students also receive a solid general education in communications, humanities and social sciences. In agriculture or natural resources, the graduate will have an opportunity for a rewarding career that will last as long as food is consumed, fiber is grown and soil, water and wildlife resources are valued.

Career opportunities in Agricultural Sciences and Natural Resources are highly diverse. Majors are supported in traditional agricultural and natural resource areas such as animal science, agricultural business, soil science, range science, entomology and agricultural education, in addition to emerging areas such as plant and animal biotechnology, food science, natural resource management and agricultural communications. CASNR’s programs also include many fields not commonly associated with agriculture such as landscape architecture, turf management, biochemistry, environmental science, leadership and pre-medical sciences. CASNR students come from both traditional agricultural roots and urban settings. This diversity adds strength to the college experience for all CASNR students. Active international programs, including study abroad opportunities, are open to students in every CASNR major and add a unique dimension to the college experience.

Accreditation

Agricultural Sciences and Natural Resources include broad and diverse professions and do not have a single accrediting society as do some other professions. Programs in agricultural education, agricultural engineering, forestry, landscape architecture and landscape management are accredited by their professional organizations.

Academic Programs

Undergraduate Programs. The Bachelor of Science in Agricultural Sciences and Natural Resources degree is offered in the following major fields of study: agribusiness, agricultural communications, agricultural economics, agricultural education, agricultural leadership, animal science, biochemistry and molecular biology, entomology, environmental science, food science, horticulture, landscape management, natural resource ecology and management, and plant and soil sciences. The Bachelor of Landscape Architecture is also offered in the College of Agricultural Sciences and natural resources. Most departments offer one or more minors. The requirements for the minors are available from the department offering the specified minor.

Graduate Programs. Graduate study is available in all CASNR academic departments and in the multidisciplinary international agriculture program. In addition to the Master of Agriculture and Master of Science degrees that may be obtained through several departments, the Doctor of Philosophy degree (PhD) may be earned in the following areas: agricultural economics, agricultural education, biosystems engineering, animal science, biochemistry and molecular biology, crop science, entomology, food science, plant pathology, soil science, natural resource ecology and management and in horticulture through interdisciplinary programs in crop science, environmental science, and plant science.

High School Preparation and Admission Requirements

The high school preparation and admission requirements for the College are the same as the general University requirements.

Transfer Students

Students who transfer from an accredited college or two-year college must meet the general University admission requirements. All transferred courses are recorded on the OSU transcript; however, a minimum of 60 credit hours must be earned at a senior college (baccalaureate degree-granting institution) to meet the College’s degree requirements. Credits will be accepted by transfer from a community college to meet lower-division (i.e., 1000- and 2000-level courses) requirements only. Specific departmental requirements needed for graduation are determined by the department in which the student plans to earn his or her degree.

Scholarships

Students enrolled and entering the College of Agricultural Sciences and Natural Resources are annually awarded over two million dollars in scholarships by the College and its departments. The following areas are considered in the awarding of scholarships: scholastic standing in high school or college; leadership qualities; financial need and sincere interest in the various agricultural disciplines. Additional information may be obtained from the office of the associate dean, College of Agricultural Sciences and Natural Resources, Oklahoma State University, 136 Agriculture Hall, Stillwater, OK 74078. Applications are available at casnr.okstate.edu.

Student Success Center

The College of Agricultural Sciences and Natural Resources Student Success Center (SSC) helps students with educational, career and personal goals. The SSC provides important services, programs and student support including Student Academic Mentors, Ambassadors, Career Liaisons, Freshmen in Transition, Success Coaches for Outstanding Transfer Students, Career Services, Prospective Student Services, assistance with tutoring or other services, and liaison to the OSU Writing Center. Mathematics Learning Resource Center and the Learning and Student Success Opportunity Center.

Academic Advising

All students in the College have the advantage of being advised by a faculty member working in the individual student’s academic discipline. Academic advisers are readily available to students and work closely with the students throughout their academic careers.

Special Academic Programs

Honors Program. The Honors College through the College of Agricultural Sciences and Natural Resources is designed to provide outstanding students with opportunities to pursue new challenges and academic excellence. Honors courses, seminars, and special honors contracts provide for discussions and independent study by students who have the desire and ability to explore academic subjects beyond the normal class work material. Honors awards available in the College are:

1. General Education Honors.
2. Departmental Honors.
3. The bachelor’s degree, with honors.

Awards (1) and (2) may each be earned independently of one another. Award (3) is earned by satisfying the requirements of both (1) and (2). The completion of each award is noted on the student’s transcript. Students who complete all three receive the bachelor’s degree with honors diploma.

All entering freshmen who have ACT composite scores of 27 and a high school GPA of 3.75 or better, are eligible to become a part of The Honors College. Sophomores, juniors, and seniors, may also enroll in The Honors College. Additional information may be obtained from the director of The Honors College, 101 Old Central.

Pre-Veterinary Medicine Curriculum. Specific pre-veterinary science majors in agribusiness, animal science, biochemistry and molecular biology, entomology, and natural resources and ecology management as offered in the College of Agricultural Sciences and Natural Resources, include all courses required for admission to the Center for Veterinary Health Sciences. Although the pre-veterinary course requirements may be completed within two years, most pre-veterinary medicine students complete at least three years.
Agricultural Communications prepares students to provide that necessary communication between industry leaders and the public. Education in Modern agriculture, with its diversity and specialization, requires accurate instruction in technical agricultural sciences with education in the application of economic and business management principles and tools. The agricultural economist or agribusiness person draws upon the physical and social sciences to outline, understand, and solve economic problems created by agriculture’s dynamic operating environment. Curricula in the Department of Agricultural Economics emphasize the decision-making and problem-solving skills used in the management of agricultural production and marketing firms.

Study in agricultural economics or agribusiness prepares students to excel in many challenging careers. Many graduates work to improve food production and the management of agricultural production and marketing firms.
and processing throughout the world. Other graduates work in government agencies. Others assist rural communities to adjust and thrive in the rapidly changing world. Graduates also help protect and maintain natural resources and the environment for the greatest benefit of society. Many graduates choose career paths that lead them far from the farm; and others choose to return to family businesses.

**Agricultural Economics.** The Agricultural Economics BS degree trains students to analyze problems and make decisions using a solid framework of economic and business principles. Study plans may be tailored to a wide variety of career paths. The base Agricultural Economics degree plan offers specializations in Quantitative Studies, Environmental and Natural Resources, and Community and Regional Analysis. The Agricultural Economics BS degree student can also choose a double major with Accounting. Each of the study plans in Agricultural Economics equips students for a variety of employment opportunities at competitive salaries in private industry and government agencies.

**Agribusiness.** Like the Agricultural Economics degree, the Agribusiness BS degree trains students to analyze problems and make decisions using a solid framework of economic and business principles. In addition, the agribusiness degree gets the skills needed for careers in agribusiness firms, including all areas of food and fiber production, processing, and marketing. Students may choose from eight degree options: Farm and Ranch Management, Agribusiness Management, Agribusiness Marketing, Agribusiness Finance, Crop and Soil Science, International, Pre-Law, or Pre-Veterinary Business Management. Agribusiness students may develop a minor area of study or a minor major by selecting various course electives. Employment opportunities for agribusiness graduates are widely diverse, including jobs with farms, agricultural advisers, processing firms, wholesalers and retailers of food and fiber products, farm input supply firms, banks and other financial services firms, utilities and educational institutions.

**Minor in Agricultural Economics and Agribusiness.** The minor helps students understand the basics of economics and business within the context of Agricultural Sciences and Natural Resources. Requirements of the minor include an introduction to Agricultural Economics or Micro Economics and Financial Accounting or Agribusiness Accounting and Taxation plus 15 hours controlled electives of upper division Agricultural Economics courses.

**Graduate Programs.** The department offers graduate work leading to the Master of Science, the Master of Agriculture, and the Doctor of Philosophy degrees. Both thesis and non-thesis options are available at the MS level. PhD students complete a teaching practicum in addition to the research thesis as a part of the degree requirements. The graduate program stresses development of superior professional competence, suited to the demands of the modern business, academic, government and research environments. Advanced courses concentrate on economic analysis applied to problems of production, distribution and consumption of agricultural products. Courses in economic theory, econometrics, mathematical economics and statistics are an integral part of the program. Prerequisites: microeconomic analysis, natural resource management, international trade, planning, policy, and development are also important topics.

The faculty give direction and individual guidance to student research in marketing, production, management of agricultural enterprises, demand and price analysis, land and water use and development, non-market valuation, rural development and planning, agricultural finance, international trade, farm appraisal, agricultural policy, econometrics, and experimental economics. Students specialize through course electives and research topics. In addition, an advisory committee guides each student in preparing the program of study to ensure that the student's background, graduate course work, and research program together lead to the desired depth and breadth of proficiency.

**Admission Requirements.** Prerequisites to advanced training in agricultural economics are (1) the desire to understand and solve the complex and changing economic problems faced by agriculture and rural society, and (2) the desire and ability to learn methods of rigorous logical analysis. In addition, differential calculus, statistics, and intermediate macro- and microeconomic theory constitute a minimum background for advanced study in agricultural economics. In certain cases, a part of this work can be taken after admission but will not count towards a graduate degree.

Acceptance by an advisor in the department is not required prior to admission to the departmental graduate program. GRE test scores are required for admission to the program.

**Agricultural Education.**

Robert Terry, Jr., PhD—Professor and Head

The programs of study offered in Agricultural Education are designed to provide both comprehensive and specialized training to prepare graduates for careers in a wide range of fields in agriculture. In addition to being prepared for licensure as teachers, graduates are professionally prepared for work in cooperative extension and other federal and state programs and services, as well as international education endeavors. Graduates also may find employment as educational directors and consultants with agribusiness firms and organizations. Studies may culminate in the BS, MAg, MS or PhD degrees. The Agricultural Education program is accredited by the Council for the Accreditation of Education Preparation (CAEP).

The undergraduate teaching option is designed to qualify the bachelor’s degree recipient for the Oklahoma Agricultural Education Teaching License. This license is recognized as meeting requirements for initial employment as a teacher in the state of Oklahoma. Graduates applying for the Master of Education Teacher and Cooperative Extension Educator to both agricultural sales, marketing and production positions. Some students find it advantageous to elect a dual major i.e., Animal Science/Agricultural Education, Agricultural Education/ Animal Science, Agricultural Education/ Agricultural Communications. Students must meet the following meeting requirements in both Agricultural Education and another major within the College of Agricultural Sciences and Natural Resources. The undergraduate Agricultural Education major is structured to provide educational experiences in general education, agriculture and professional education.

**Graduate Programs.**

Graduate programs in Agricultural Education are designed to (1) prepare students for entry into or advancement in teaching careers and (2) provide for further development of professional leadership skills for other educational careers in agriculture, agribusiness, government service, extension, or adult education. To meet the needs of both international and domestic students, plans of study are developed for academic excellence specific to students’ career goals. The selection and organization of courses are made in consultation with the adviser and the student’s advisory committee.

The Master of Agriculture is offered to further knowledge and skills of agriculture and education in preparation for and advancement in teaching, extension and other professional areas. The Master of Agriculture program requires 32 approved semester credit hours of course work, including a two-credit-hour creative component, which may involve curriculum, teaching methods, a review of research literature or another approved project.

The Master of Science develops the theoretical and research foundation needed to further develop graduate study and teaching careers in agriculture and education. It is designed primarily for those students interested in research. Two options are offered in the Master of Science program. The thesis option requires 30 approved credit hours of course work, which includes a six-credit-hour formal thesis describing the graduate college format. The formal report option requires 32 approved semester hours of course work, which includes a two-credit-hour formal report.

The Doctor of Philosophy program is designed to prepare graduates for careers in professional education, supervision, administration, curriculum development and other areas of professional leadership in Agriculture, Agricultural Extension, Career and Technology, and Agricultural Communications. Within the minimum 60 credit hour requirement, 15 credit hours must be completed in Agricultural Education. In addition, 15 credit hours must be completed in an area of specialization such as such as Agricultural Extension, Technical Agriculture, Educational Administration, or other similar areas. The additional hours include 15 hours of research design and statistics and 15 hours for the dissertation.

**Admission Requirements.** Students seeking admission to the master’s degree program must have earned a bachelor’s degree in Agricultural Education, Agriculture or Education. A student with background deficiencies in agriculture and education in preparation for further development of professional leadership skills for other educational careers in agriculture, agribusiness, government service, extension, or adult education. Graduates must compensate for such deficiencies before completing the masters degree. Evidence of academic ability (2.80 GPA or above) in undergraduate course work is required. Three letters of reference and a statement of purpose are required. Graduate Record Exam (GRE) scores are waived for students seeking admission to the Master of Science degree program.

Admission to the doctoral degree program is based upon evidence that the applicant meets the general requirements of the Graduate College, has demonstrated superior achievement, and can successfully complete a doctoral program as evidenced by three letters of recommendation, GRE scores, a minimum of 2.80 undergraduate grade-point average and 3.00 graduate grade-point average, three years of successful professional experience, and a philosophy statement and goals. Alternative criteria may be considered by the graduate committee for those who submit ample supportive evidence of other exemplary qualifications.

**Agricultural Leadership.**

Robert Terry, Jr., PhD—Professor and Head

The agriculture and natural resources industries need strong leaders. The ever-increasing intricacies of the agricultural industry make it all the more important to have individuals who understand the economic and human dimensions of agriculture as well as the human dimension. The Agricultural Leadership major provides students the opportunity to prepare as generalists in agricultural sciences and natural resources while developing a strong understanding of leadership theory and its application. Agricultural Leadership is a four-year program that prepares students for careers in extension, politics, governmental agencies, non-profits, corporate agriculture, higher education and small business.

The Agricultural Leadership Curriculum is guided by five core values: commitment to agriculture, authentic leadership, diversity, critical thinking and practicalism. Agricultural Leadership faculty align course objectives, learning opportunities and student experiences with the five core values. Beginning students study historical and theoretical foundations in leadership, authentic leadership and transformational leadership before exploring contemporary
The Master of Agriculture degree is designed for students interested in graduate professional training. The degree is offered in the following specialization areas: Agricultural Education, Agricultural Leadership, Animal Science,, and Agriculture Leadership.

**Purpose.** The purpose of this degree is to provide a program which will give additional opportunities in technical fields, as well as increased breadth of training. Students who are interested in working toward the PhD degree will generally follow the regular Master of Science degree program.

**Character of Program.** This program provides a greater breadth of study than the Master of Science program. Emphasis is on practical application of the technical aspects of the discipline as well as discipline interrelationships. In some areas of specialization, the focus is on an applied research concept and a broader program of study than is normally available with the specialized research degree.

**Admission Requirements.** A baccalaureate degree in Agriculture or a related field is required for admission. The candidate must meet requirements for acceptance into the Graduate College and be recommended by the departmental graduate committee responsible for the program.

**Degree Requirements.** The requirements for this degree are the same as those listed in the Catalog, “Graduate College” section, under “The Master’s Degree.”

In addition, each candidate approved for study under this program will be assigned an adviser and advisory committee with whom he or she will develop a plan of study in accordance with guidelines established in the department. A preliminary plan of study must be approved by the Office of the Associate Dean for Academic Programs and must be filed in the Graduate College Office prior to enrollment for the 17th credit hour. Departmental comprehensive final examinations will be required of all Master of Agriculture candidates.

**Degree Options.**

**Option A Requirements.** A total of 32 approved semester credit hours of work, including an approved report having a credit hour value of not more than two credit hours, is required.

**Option B Requirements.** A total of 36 approved semester credit hours of work is required; and must contain a creative component. No report is required.

**Option C Requirements.** A total of 36 approved semester credit hours of work, including six hours of credit for a professional internship, is required. The internship includes professional practice and a report.

**Animal Science**

Clint Rush, PhD—Professor and Head

Animal science is concerned with the science, art and business of the production of beef cattle, dairy cattle, horses, poultry, sheep, goats, swine and pet/companion animals. An animal scientist is concerned with the application of the principles of the biological, physical and social sciences to the problems associated with domestic production and management.

Animal science is also concerned with food production. The food industry is one of the largest and most important industries in the United States. Food scientists are concerned with the processing, safety, quality control and marketing of food.

Undergraduate students may elect to pursue a Bachelor of Science degree in the department by majoring in either animal science or food science. Internship programs providing one to six months of off-campus work experience are available in all animal science options and are part of the curriculum for food science. Participation in undergraduate organizations (Animal Science Leadership Alliance, Block and Bridle, Dairy Science, Horsemens Association, Food Industry, Meat Science Association, Oklahoma Collegiate Cattlewomen, Oklahoma Collegiate Cattlemen, Pre-Vet Club) judging teams (livestock, meats, horses, or dairy cattle) and academic programs (honors, undergraduate research scholars, and academic quadrathlon) improves social, communication, leadership and academic skills and abilities.

**Animal Science.** Undergraduate students may elect study emphasis programs in the areas of Animal Biotechnology, Business, International, Livestock Merchandising, Pre-Veterinary Animal Science, Production, and Ranch Operations, or a double major with Agricultural Communications or with Agriculture Education. In addition, students have the opportunity to concentrate their studies on one or more animal species.

Students interested in veterinary medicine may complete the pre-veterinary medicine requirements at the same time they are working toward a BS degree in animal science. In addition, pre-vet students gain valuable insight into the care and management of animals throughout the Animal Science curriculum.

Undergraduate students follow a similar curriculum during the first two years which includes basic courses in the physical, biological and social sciences, and a series of introductory courses in agriculture and business. Upper-class students take a basic core of advanced animal science courses, including genetics, reproductive physiology, and nutrition. As seniors, students complete a series of advanced animal science courses which are designed to apply knowledge obtained in previous courses to livestock systems. Every opportunity is taken in teaching to utilize the excellent herds and flocks owned or operated by the department.

Students completing a degree with a major in Animal Science have a wide choice of challenging careers, including ownership or management of farms, ranches, feedlots; employment with state and federal agencies concerned with inspection, grading or regulation; banking and financial activities, sales and service positions with companies involved with feeds, pharmaceuticals or other animal products; biotechnology; opportunities in Agricultural Extension or teaching; and work in the processing, distributing and merchandising of dairy, poultry and meat products.

**Minor in Animal Science.** The minor is designed to give students the core courses in Animal Science and prepare them for a career that they are interested in. The minor coursework required for the minor will provide students with the knowledge to be competitive and succeed in the animal agriculture industry. The requirements include ANSI 1124; Introduction to Animal Science and 15 additional hours of Animal Science courses that the student elect to complete to satisfy their programs. The basic core of advanced Animal Science courses include genetics, reproductive physiology, and nutrition. Students can then complete a series of advanced animal science courses designed to apply knowledge obtained in previous courses to animal systems.

**Food Science.** Food science is an applied field. A food scientist is someone who applies the basic sciences: biology, physics, chemistry, and mathematics to further our understanding of the factors that affect food quality, safety, and nutrition. Food science is applied to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome foods.

There are three study emphasis programs in the food science major: Science, Industry and Meat Science.

The Food Science emphasis gives students a well-grounded background in chemistry, physics, mathematics and biology as well as food science. Students who elect this option usually have a primary interest in science and will be prepared to enter graduate education programs in food science.

This Science emphasis is also an excellent choice for students interested in professional schools such as medical school, dental school, pharmacy, physical therapy and veterinary medicine. Students who elect to not pursue a graduate degree or a professional degree are prepared to work in any facet of the food industry, especially those jobs focused on research, product development and food analysis.

The Industry emphasis provides a basic understanding of the chemical and physical processes of food processing. Students pursuing this option are prepared to enter food plant management, quality assurance, quality control, product development and sales.

The Meat Science emphasis provides a background knowledge and understanding in live animal production, slaughter and fabrication, and meat product development.
processing along with a basic understanding of chemical and physical processes of meat production. Students pursuing this option are prepared to enter the meat industry working in quality assurance, slaughter/fabrication, meat processing, product development and sales.

Minor in Food Science. The minor includes the core courses in Food Science. Requirements include BIOC 1133 - Introduction to Food Science and 18 additional hours of core Food Sciences courses that the student can select from to personalize their programs. The basic core of food science courses include food chemistry, food microbiology, quality control, and food analysis, as well as meat science courses. Students interested in the meat industry or dairy and dairy products courses for students interested in the dairy industry. Students can complete their program with advanced courses in these areas.

Graduate Programs. The Department of Animal Science offers programs leading to the Doctor of Philosophy or Master of Science degree in Animal Science and contributes to the interdepartmental food science graduate program. Research areas of emphasis are available in Animal Breeding (quantitative and molecular genetics), Animal Behavior, Animal Nutrition, Grazing Livestock, Nutrition and Management, Immunology, Animal Reproduction and Physiology, Animal Biotechnology, and Food Science (meat or milk products). A Master of Agriculture degree in the emphasis area of Animal Science is also available.

Prerequisites. Admission to the graduate program requires an undergraduate major in Animal Science, Dairy Science or Poultry Science, or in closely-related biological sciences or biochemistry. In addition, students with a major in Dairy Manufacturing, Microbiology, Human Nutrition, Food Science, or Food Technology can qualify for the program in Food Science. A student enrolling in a departmental program must have been accepted by an advisor prior to official admission. In all cases, the student’s graduate adviser or committee may recognize specific undergraduate deficiencies and require measures to attain proficiency.

Biochemistry and Molecular Biology John E. Gustafson, PhD—Professor and Head
Biochemistry, the central scientific discipline linking the chemical, physical and biological sciences, exerts a profound influence on the progress of medicine and agriculture. By applying concepts and methods of chemistry and physics to the fundamental problems of biology, biochemists have made great progress in their efforts to understand the chemistry of living organisms. Major discoveries concerning the biochemistry of genetic material provide the tools of molecular biology that are essential to contemporary life sciences research.

Biochemists and molecular biologists are concerned with living things and thus, must be fluent in the concepts of biological sciences. Since a biochemist’s tools are the physical sciences, he or she must receive sound education in mathematics, physics and chemistry. Our academic programs are designed to integrate these disciplines, preparing students for a wide range of professional careers.

Challenging positions for well-trained biochemists and molecular biologists are available in colleges and universities, state and federal laboratories, research institutes, medical centers and in an increasing number of industrial organizations, particularly the pharmaceutical and food industries. Biochemists are involved with research on the chemistry of processes occurring in plants, animals, and microorganisms; the design and development of antibiotics, vitamins, hormones, enzymes, insecticides and molecular genetics techniques.

The Department of Biochemistry and Molecular Biology administers two BS degree options in Biochemistry and Molecular Biology through the College of Agricultural Sciences and Natural Resources, and a BS degree in Biochemistry through the College of Arts and Sciences. An honors program is available in all three degree plans. Also available is a 4+1 Year Masters by Coursework program. The undergraduate curriculum provides a broad background in chemistry and the biological sciences and permits flexibility to meet particular interests of the student. Courses in biochemistry are based on general, organic and analytical chemistry. The undergraduate curriculum also provides students with sufficient background in the basic sciences of mathematics, physics, and general chemistry needed for study in most disciplines of contemporary life sciences and physical sciences. Mathematics and related material. Research advisers are selected at the end of the student’s second semester. All graduate students must maintain a B average in their graduate coursework. Graduate of Chemistry (BIOC 4853) and an additional hours of core Food Sciences courses that the student can select from to personalize their programs. The basic core of food science courses include food chemistry, food microbiology, quality control, and food analysis, as well as meat science courses.

Minor in Biochemistry and Molecular Biology. This minor is designed to give students a firm understanding in the fundamentals of Biochemistry and Molecular Biology and to develop critical thinking skills for the interpretation of new findings in these disciplines. Students will gain primary knowledge in modern biochemistry through two lecture courses (BIOC 3713 and BIOC 3813). Hands-on training with experimental tools of these disciplines will be emphasized during the Biochemistry and Molecular Biology laboratory course (BIOC 3723). The knowledge gained by this minor gives a science educator, a laboratory technician, an industrial employee or a life sciences researcher the ability to apply these disciplines. This minor will also demonstrate competency in these disciplines to post-graduate health institutions.

4+1 Year Masters by Coursework Students interested in the 4+1 Year Masters by Coursework program are eligible for admission when they have completed or are in the process of completing a minimum of 92 hours of undergraduate coursework including BIOC 3713, 3723, 3813, with a minimum GPA of 3.0. A minimum GPA of 3.0 and a minimum of 92 hours of undergraduate coursework must be approved by the Department Head in the spring semester. Students accepted into this program will continue to take graduate coursework toward their BS degree in Biochemistry (BIOC) or Biochemistry and Molecular Biology (BIOC/3813) and simultaneously take appropriate graduate coursework to be applied to the 4+1 program. Students will be admitted to the Graduate College at the beginning of the semester after the semester in which they complete a total of 120 hours, whether those hours count towards the B.S. or the M.S. degree.

Graduate Programs
Many career opportunities in biochemistry require advanced course work, and so part of the Department of Biochemistry and Molecular Biology’s curriculum is focused on its graduate program leading to the MS or PhD degree. This graduate program is also an integral part of the extensive basic research activities supported by the Oklahoma Agricultural Experiment Station.

Prerequisites. Although a BS in Chemistry or Biochemistry is preferred, students with strong backgrounds in other biological or physical science disciplines are eligible for the graduate programs in Biochemistry and Molecular Biology. Individuals not having at least eight semester credit hours each of organic chemistry and calculus, plus four credit hours each of analytical and physical chemistry, must take the appropriate undergraduate courses to make up deficiencies. The results of the three general GRE exams (verbal, quantitative, analytical) are required for entrance to the Graduate College. The preferred minimum GRE scores required for admission to the Biochemistry and Molecular Biology graduate program are: verbal Reasoning 155 (64%), Quantitative Reasoning 153 (65%), and Analytical Writing 4.0 (48%).

Degree Requirements. A more detailed description of the graduate study program in Biochemistry and Molecular Biology is available on the Department’s website: http://biochemistry.okstate.edu/graduate-program. The requirements listed for each graduate requirement are determined with the assistance and approval of the student’s advisory committee and are based on whether a BS or MS has previously been earned: (a) a minimum total of (60) graduate credits are required if a student enters the “Graduate College” section of the Catalog. All Biochemistry and Molecular Biology graduate students are expected to attend and participate in the Department’s Graduate Student Journal Club and the Department’s Student Seminar Series throughout the academic year.

The Master of Science Degree. Twenty-four (24) credit hours of formal graduate courses are required, including BIOC 5002, 5753, 5824, 5853, and 5930. In addition, a student must present an acceptable research thesis (six hours of BIOC 5000) and pass a final oral examination covering their thesis work and related material. Research advisers are selected at the end of the student’s first semester.

A non-thesis Master of Science degree is also available. It does not require a research thesis, but requires a report and extensive technical training in the laboratory. The non-thesis MS plan requires thirty (30) credit hours of coursework and two (2) hours of research. The non-thesis MS is not recommended for students wishing to pursue a PhD.

The Doctor of Philosophy Degree. The PhD program course requirements are determined with the assistance and approval of the student’s advisory committee and are based on whether a BS or MS has previously been earned: (a) a minimum total of (90) graduate credits are required; (b) a minimum total of ninety (90) graduate credits are required if a student enters the PhD program having earned an MS in a related discipline; (c) a minimum total of 60 credit hours or (b) 90 credit hours must be approved by the student’s advisory committee and submitted to the OSU Graduate College before completing (a) 17 credit hours or (b) 28 credit hours of graduate study. The student’s advisory committee is selected at the end of the student’s second semester. All graduate students must maintain a B average in their graduate coursework. A grade of C in a single graduate course can place the student on academic probation.

The Department offers research experience in a variety of areas. Formal PhD program graduate coursework includes all of the courses listed for the MS degree plus at least four of the following: additional courses and lab experience appropriate to the student’s interests. Each student will take a series of preliminary examinations in January of his or her third semester. Each student also presents and defends their research thesis proposal, supports their 4th - 5th year, and at the end of their fourth year presents their research and defends their dissertation in a final oral examination. The doctoral dissertation must contain a substantial original contribution to the discipline of biochemistry and molecular biology.

Bioinformatics Graduate Certificate Program
The Department of Biochemistry and Molecular Biology also offers the Bioinformatics Graduate Certificate Program - a multi-disciplinary program that involves faculty in Departments across the University. This Program's mission is to train post-baccalaureate students in the techniques required to generate, analyze, and interpret complex biologically-derived data sets. The Graduate
Certificate in Bioinformatics requires completion of 16 credit hours of course work eligible for graduate credit. A minimum of 12 credit hours must be at the 5000 level or above. Required courses include 9 credit hours from the core areas of life sciences, statistics and computer sciences. Additional information on this Certificate Program is available online: http://www.bioinformatics.okstate.edu/.

Review Process for Admission
The Department’s Graduate Studies Committee reviews all eligible applications for the graduate program in Biochemistry and Molecular Biology. To be eligible for consideration, the applicant must have a bachelor’s degree with a 3.0 cumulative grade point average and must present two letters of recommendation. The applicant must write an essay which describes their interest in this program and their personal and professional goals. All applications will be considered on a competitive basis. The student’s undergraduate cumulative GPA, GRE scores, and TOEFL scores will be considered.

The program offers an opportunity to focus on the option areas given above. The degree is accredited by the Engineering Accreditation Commission of ABET, under criteria for biological engineering and similarly named programs, including positions involved with pest management in crops and livestock production, stored products such as grains and processed foods and the processing, storage, handling and distribution of food, feed, fiber and other biological, food and biological systems. Graduates of the program will:

• be committed to enhancing knowledge and skills through continuing education and actively participate in professional development activities.
• be effective in oral, written and visual communications as practicing professionals.
• be able to work successfully as a member of a professional team and function effectively as responsible professionals.
• be able to perform in a professional and ethical manner as a practicing professional.
• be committed to enhancing knowledge and skills through continuing education and actively participate in professional development activities.

The degree is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, under criteria for biological engineering and similarly named programs.

The undergraduate educational program is divided into two components—pre-professional and professional. In the pre-professional portion of the biosystems engineering program (usually equivalent to two years of study) the focus is on engineering sciences, physical sciences, and biological sciences, and teach students to address real-world challenges. With the guidance of experienced faculty, students work both as individuals and in teams to design creative solutions to complex problems.

The overall objective of the undergraduate biosystems engineering degree program is to provide the comprehensive education necessary to prepare students for successful, productive and rewarding careers in engineering for agricultural, food and biological systems. Graduates of the program will:

• establish themselves as practicing professionals able to understand, analyze, and solve real-world problems in food, agricultural, environmental, and/or biological systems
• be effective in oral, written and visual communications as practicing professionals.
• be able to work successfully as a member of a professional team and function effectively as responsible professionals.
• be able to perform in a professional and ethical manner as a practicing professional.
• be committed to enhancing knowledge and skills through continuing education and actively participate in professional development activities.

The degree is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, under criteria for biological engineering and similarly named programs.

The undergraduate educational program is divided into two components—pre-professional and professional. In the pre-professional portion of the biosystems engineering program (usually equivalent to two years of study) the focus is on engineering sciences, physical, chemical and mathematical principles of engineering, supplemented by appropriate general education courses in English, social sciences and humanities. Students who demonstrate proficiency in this portion of the program are eligible for admission to the professional school in Biosystems Engineering.

The professional school of biosystems engineering curriculum (typically two years) builds systematically upon the scientific knowledge acquired in the pre-professional curriculum. In professional school, students have the opportunity to focus on the options areas given above. The degree is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology under agricultural engineering and similarly named programs.

Each professional school course builds upon preceding engineering courses to develop in the student the ability to identify and solve meaningful engineering problems. The course work is specifically sequenced and interrelated to provide design experience at each level, leading to progressively more complex, open-ended problems. The course work incorporates the social and economic aspects of technical problems, and stresses the responsibilities as engineering professionals to behave ethically and promote occupational and public safety. The program culminates in senior year design courses in which students integrate the analysis, synthesis and other abilities they have developed throughout the earlier portions of their study into a capstone experience. At this point, they are able to design components, systems, and processes that meet specific requirements, including such pertinent societal considerations as ethics, safety, environmental impact and aesthetics. The students have also developed and displayed the ability to conduct experiments essential to specific studies and to analyze the experimental results and draw meaningful conclusions.

An integral part of this education continuum from basic science through comprehensive engineering design is learning experiences that facilitate the students’ abilities to function effectively in both individual and team environments. Moreover, the program provides every graduate with adequate leading experiences to develop the written and oral communication skills.

State-of-the-art computational tools are introduced and used as a part of their problem-solving experiences. Finally, the students’ experiences in solving ever-more-challenging problems enable them to continue to learn independently throughout their professional careers.

A wide variety of employment opportunities are available for biosystems engineers in industry, public service and education. Some of these opportunities include positions in governmental agencies, consulting engineering firms, and agricultural and food equipment industries. Biosystems engineers are employed throughout the U.S. as well as internationally.

Students interested in a degree in Biosystems Engineering may initially enroll in the College of Agricultural Sciences and Natural Resources or the College of Engineering, Architecture and Technology. Students who enroll in the College of Agricultural Sciences and Natural Resources should request a biosystems engineering adviser and transfer to the College of Engineering, Architecture and Technology by the end of their first semester.

Graduate Programs
The Department of Biosystems and Agricultural Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees in Biosystems Engineering. These degrees emphasize research and development. Excellent laboratory and computer facilities are available for students to explore research and design in such areas as bioprocessing and biotechnology, machine vision, sensor and control technology, waste management and utilization, hydrology, water quality, porous media flow, and intelligent systems for agricultural machine design and production.

Research projects are supported by the Agricultural Experiment Station and by state, federal and private grants and contracts. A well-trained faculty, many of them registered professional engineers with research, consulting and design experience, guide the graduate students’ activities and plan programs to meet students’ needs. Graduate students design experiments and special equipment to conduct their research. They are expected to demonstrate, by supporting research or by designs, the ability to identify a problem, define alternatives, propose a solution, organize a design or an experimental investigation, manage the project to completion and report the results through peer-reviewed papers and professional presentations.

Admission Requirements. Admission to either the Master of Science or Doctor of Philosophy degree program requires graduation from an engineering curriculum accredited by the Accreditation Board for Engineering and Technology. Students without accredited degrees may be admitted provisionally and may be required to take additional courses. A student must be accepted by an adviser in the department prior to official admission to the graduate program.

Degree Requirements. A candidate for the graduate degrees listed above follows an approved plan of study which must satisfy at least the minimum University requirements for that particular degree.

Entomology and Plant Pathology
Philip G. Malicki, Jr., PhD—Professor and Head

The mission for the Department of Entomology and Plant Pathology is to discover, develop and disseminate science based knowledge concerning arthropods and plant pathogens. Entomology is the science and study of insects and related arthropods. Plant Pathology is the science and study of bacteria, viruses, fungi and nematodes that cause diseases in plants. A strong academic background in the physical and biological sciences is essential for success in both disciplines. Research and education programs range from basic studies of cellular, physiological and genetic aspects to broad ecological and population studies and focus on the development of practical pest management strategies.

The undergraduate program in entomology leads to the BS in Entomology and offers students opportunities to explore the diversity of nature through the study of arthropods and their interactions with plants, animals and human culture. Specialized course work in entomology includes insect identification, biology, ecology, physiology, biochemistry, population dynamics, medical and veterinary entomology and insect pest management.

Plant pathology as a discipline encompasses the science required to understand the causes of plant diseases as well as prevention and controlling diseases. Undergraduate level courses are available in Plant Pathology and are valuable additions to programs in entomology, horticulture, agronomy, ecology and botany. Specialized course work in plant pathology includes pathogen identification, genetics, host-parasite physiology, biotechnology, molecular genetics and disease management.

There are many, and diverse, career opportunities for graduates of these programs, including positions in pest management in crops and livestock production, stored products such as grains and processed foods and protecting structural systems such as houses from termites and agricultural...
biotechnology. Undergraduate options in entomology include insect biology and ecology, bioforensics and pre-medical, and pre-veterinary sciences. Undergraduates of the entomology program are prepared to enter graduate programs in several disciplines, including entomology and plant pathology and have been successful in seeking and receiving professional degrees in medical and veterinary science programs. Others gain employment with private industry, research laboratories or county, state or federal agencies. Some develop their own businesses as consultants and/or entrepreneurs.

Minor in Entomology. This minor is designed to provide students with a basic or intermediate background in entomology. Students are also instructed on applications of Entomology related to ecosystem function, conservation and agricultural impacts. Directed electives in this major also allow students to explore aspects of insect behavior, aquatic entomology, specific applications of entomology in horticulture, forestry, agronomy, and stored product insects.

Minor in Pest Management. The minor is designed to introduce students to pests including insects, plant pathogens, and weeds that damage, reduce the quality or increase production costs of agricultural crops or livestock, turf or ornamental plants, and trees. Integrated management methods for these pests will be presented including cultural, biological, and chemical control strategies. The minor is intended for students majoring in horticulture, plant and soil science, natural resource ecology and management, animal science, environmental science, entomology, or other majors in biological sciences.

Graduate Programs

The Department of Entomology and Plant Pathology offers programs of study that lead to the MS of Entomology and Plant Pathology, the PhD in Entomology or the PhD in Plant Pathology. These programs offer students opportunities to specialize in a wide range of basic or applied research fields. To qualify for graduate study in entomology and/or plant pathology an applicant must obtain a solid background in the basics sciences, especially biology, chemistry, mathematics, English and communications skills. All requirements of the Graduate College must be satisfied for entry to the graduate programs. In addition, applicants for graduate programs should take the Graduate Record Examination and submit their scores. Students applying to the graduate program must be accepted into a research program by a major professor. The applicant must secure appropriate financial support in the form of a scholarship, fellowship or graduate assistantship, to be negotiated with the major professor and department head and approved by the departmental screening committee and department head before being admitted to the Graduate College. Each graduate student is under the direction of the major professor as adviser and a selected faculty advisory committee. The program of study will be adapted to the individual's needs within the departmental and Graduate College guidelines. Graduate students are required to meet with their advisory committees every six months for program reports and examinations. Each student will follow a program of study and research approved by the student's committee and, except for the Master of Agriculture degree, must submit an approved thesis or dissertation and present a public defense. Students supported as half-time research assistants at the graduate level will be participating in the research projects of their major professors. Additional information regarding the graduate programs in Entomology and Plant Pathology may be obtained from the department's website at: www.entoplp.okstate.edu.

Environmental Sciences

Brian J. Carter, PhD—Program Director

The College of Agricultural Sciences and Natural Resources offers an undergraduate major in environmental sciences. This interdisciplinary program is designed to improve the current and future welfare of the human race through understanding environmental policies based on scientific principles in accordance with the true benefits and costs as evaluated by an informed society. As an interdisciplinary and science-oriented major, the student takes courses in biology, chemistry, math, physics, statistics, and social sciences. The student may choose one of three areas of emphasis (options): Environmental Policy, Natural Resources, or Water Resources. Depending on the option, upper-division coursework will involve problem-solving in water and environmental quality, economic and social policy, political science, resource management and engineering. The student will also be exposed in general education subjects, including communications, philosophy, ethics and sociology. A primary goal is to enable graduates to solve environmental problems based on scientific principles and in accordance with society's needs. Successful completion of this program means the student the Bachelor of Science in Agricultural Sciences and Natural Resources degree.

The environmental sciences undergraduate major is directly supported by faculty from the departments of Agricultural Economics, Biosystems and Agricultural Engineering, Entomology and Plant Pathology, Architecture, Natural Resource Ecology and Management, and Plant and Soil Sciences. The major and its students also benefit from working in and out of the classroom or laboratory with faculty who are conducting cutting-edge research related to environmental problems through the Freshman Research Scholars Program.

Graduates work in such areas as land-use planning, environmental management, natural resources management, waste disposal, water and soil quality, environmental remediation and policy analysis. Industries associated with the extraction, utilization and manipulation of natural resources have been the major number of employees with environmental training to address regulation compliance, litigation, monitoring, public relations and management practices. Graduates may also work with federal, state and local government agencies involved in regulation, resource management and policy development. Graduates also go on to become scholars, educators, researchers, consultants, find employment with consulting firms that are involved with solving environmental problems. Many graduates go on to graduate school or pursue a degree from a professional school, such as law or medicine.

Horticulture and Landscape Architecture

Ronald L. Elliott, PhD—Professor Emeritus and Interim Head

Horticulture is the science, business and art associated with the cultivation, production, preservation and processing of flowers, trees, shrubs, turfgrass, vegetables, fruits and nuts. It also includes the proper environmental and maintenance of plants in the landscape. Horticulture is involved with the production and processing of a significant part of the nation's food supply. It provides a major source of the beauty in and around homes, cities, parks, highways, golf courses and other public areas. Educational opportunities for study in horticulture cover a wide variety of plants and subjects and range from the cellular to the whole plant level. Factors such as genotypic variation, genetics, propagation, control of flowering, and fruit and seed production are considered in their relationship to culture, production, conservation of resources, harvesting, processing and storage. Students can prepare themselves for careers in public garden management, arboretum, parks, parks and recreation, commercial campus design, and sustainable site design. The design process involves creative expression that comes from an understanding of the constraints of landscape design, natural systems, cultural systems and social dynamics. It requires one to interpret, imagine, draw, conceptualize, synthesize, and construct project ideas that transform both the landscapes and the users of those landscapes. As issues of sustainability are becoming more critical, Landscape Architects are poised to address them, as they design the interface between humankind and the urban, suburban, and natural environment.

Grads from the Horticulture and Landscape Architecture offer undergraduate programs leading to the following degrees: BS in Horticulture, BS in Landscape Management and BLA in Landscape Architecture. www.hortla.okstate.edu

Horticulture Science emphasis is on preparing students for science-based careers, including laboratory science or graduate study. This option provides the training and expertise for production, maintenance, and preservation of fruits, nuts, vegetables, nursery crops, flower crops, etc. Training can be general or be chosen to emphasize a particular commodity area of horticulture. Students learn plant care techniques and the role plants and landscape applications play in sustaining the environment.

Horticulture Business option features opportunity to combine horticulture with principles of running a business. A built-in requirement for a formal academic major in a business area is a business option.

Turf Management provides the training for turfgrass production and for management of turfgrass in golf courses, parks, athletic fields, home landscapes, airports and along highways.

Public Horticulture focuses on the people-plant interface, particularly in urban settings. Students may choose to specialize in either garden management or urban horticulture. The program is appropriate for those interested in careers in arboreta, botanical gardens, zoos, horticultural societies, park systems, museums, habitat creation and restoration (especially disturbed areas and/or wetlands) civic garden centers, and specialty crop production in developed areas. The option can also lead to graduate study. Students have the opportunity to be involved in The Botanic Garden at OSU and the department's television show, Oklahoma Gardening.

Landscape Architecture is the study of artistic, scientific and technical principles as they are applied to landscape planning, design, and management services. Landscape architects develop detailed landscape plans to be aesthetically pleasing, functional but compatible with the natural environment. Students will experience a strong landscape design curriculum that is supported with courses in art, construction, horticulture, ecology, environmental science, and social science. This five-year Bachelor of Landscape Architecture (BLA) degree focuses on practice. This degree is nationally accredited by the Landscape Architectural Accreditation Board (LAAB). Study plans may be tailored to the individual with emphasis areas in Design, Environmental Planning, and Horticulture. Typical employers

Oklahoma State University
of landscape architects include landscape architecture firms, agricultural/ engineering firms and government agencies dealing with land planning, environmental and conservation applications, urban planning and parks/ recreation.

**Landscape Management** emphasizes the construction and management phases of landscape development, including plants, environmental applications, and structures. This two-year program leads to a BS degree accredited by the Professional Landcare Network. Courses include basic landscape architectural design, construction technology, business and horticulture. Students may emphasize either landscape design or business management. Students emphasizing business management may complete a minor in Management through the OSU Spears School of Business. Graduates are employed by landscape contracting companies, design-build firms, landscape maintenance companies, landscape nurseries, and governmental agencies.

**Minor in Horticulture.** Additional formal training in horticulture can benefit students in career areas as diverse as education, interior design, or entrepreneurship. The minor includes 15 hours of core courses in soil science, plant biology, and horticultural science, along with advanced cross-discipline applications in plant propagation. The core provides the basic prerequisites for further study. Students then select at least eight hours of controlled electives in horticulture according to their areas of interest. A total of 23 hours is required for the minor.

**Graduate Programs**

The department offers programs of study leading to the degrees of Master of Science in Horticulture (with areas of specialization in Horticultural Science, Sustainable Landscape Design and Management, Phytochemistry and Turfgrass Science), and Master of Agriculture with specialization in Horticulture. Doctoral students can participate in interdisciplinary PhD programs in Crop Science, Environmental Science, Food Science, and Plant Science. Areas of study include floriculture crops, fruit and nut crops, vegetables, ornamental nurseries, and turf. Students with an additional emphasis in commodity specialties may emphasize food processing, environmental applications, plant extraction applications, postharvest physiology, or stress physiology disciplines. Applicants should indicate their interest area(s). Research opportunities range from whole plant production/management studies to fundamental cellular studies. Additional information on programs, application procedures, and financial assistance is available at: [www.hortla.okstate.edu/students/graduateprogram](http://www.hortla.okstate.edu/students/graduateprogram).

**Prerequisites.** Admission requires a bachelor's degree in Horticulture, Landscape Architecture, or a related field with at least a 3.00 ("B") grade-point average. Students with diverse work specialties and fundamental knowledge in one discipline may be required to take remedial courses to attain proficiency in accordance with the advisory committee's guidance. In addition to Graduate College requirements, applicants must submit official GRE scores, a statement of research and career interests, and three letters of reference.

**Admission.** Application requires approval by the graduate committee, a departmental adviser on the Graduate Faculty, the department head, and Graduate College. The program of study and research will be directed by the student's graduate adviser and advisory committee.

**International Agriculture**

Shida R. Henneberry, PhD—Professor and Director

**Master of Agriculture in International Agriculture (MAIA).** The Master of Agriculture in International Agriculture (MAIA) is a multidisciplinary degree program that provides students the diverse background necessary to design implement, and manage agricultural programs in developed and developing areas. The program prepares candidates for positions in the public and private sectors related to international agricultural development and marketing. Graduates work in international agribusinesses, non-profit organizations, development agencies, government and diplomatic service, education, agricultural extension, agricultural trade associations and commodity groups and other positions in global agriculture. Others pursue a personal desire to make a difference in the world by entering the Peace Corps, doing agricultural development work in a developing country, or working in areas recovering from a natural disaster. The MAIA is for students who prefer to blend theory and practical, in-depth, comprehension of people, development, and professional skills through an international agricultural experience, develop a focus area to support professional goals, develop broader understanding of world cultures and issues, and engage in international travel.

Three alternatives exist for satisfying requirements for the MAIA degree:

1. 32 credit hours, including two credit hours for a formal report,
2. 36 credit hours and a creative component, and
3. 36 credit hours, including six hours for a professional internship.

A minimum of 21 credit hours must be earned at the 5000 level or above. The creative component, research for formal report, and professional internship are expected to be in the area of international agriculture. Each student must take 17 semester credit hours of approved core courses, a minimum of 12 semester credit hours of focus area course, and at least three hours of electives. Each student is required to have an international experience of four weeks or longer.

**Master of Science in International Agriculture (MSIA).** The Master of Science in International Agriculture is designed to prepare candidates for positions in the public and private sectors related to agricultural sciences and natural resources, or for continuation in a Ph.D. program. The MSIA accommodates those students who prefer to take non-thesis courses preparing them for research. This program will provide students the theoretical coursework and research backgrounds necessary to design, implement, and manage agricultural programs in developed and developing countries. It allows participants to blend theory and practice to improve the lives of people. Advanced study leading to the Master of Science degree in the field of International Agriculture prepares students for such professional careers as business analyst, international trade and development specialist, college-level educator, agricultural extension specialist, and professional work with non-profit organizations, government sectors, and agricultural commodity groups. The program is multidisciplinary, allowing students the freedom to focus on the area of study they choose.

Three alternatives exist for satisfying requirements for the M.S. degree:

1. With thesis, 30 credit hours, consisting of 24 hours of course work and six hours for a thesis*
2. With report, 32 credit hours, consisting of 30 hours of course work and two hours of research*
3. With no thesis or report, 32 credit hours of course work and a creative component*

Degree candidates are expected to conduct research related to a topic on international agriculture. The programs include two courses in statistics, mathematics, or quantitative analysis; nine additional semester credit hours in agricultural sciences and natural resources or related areas.

**Natural Resource Ecology and Management**

M. Keith Owens, PhD—Professor and Head

Faculty in the Department of Natural Resource Ecology and Management (NREM) have expertise in connecting basic research, teaching, and extension education which focus on the natural resources of fisheries, forests, rangeland, and wildlife within and beyond the boundaries of Oklahoma. Increased public understanding of the ecology and management of these natural resources which are important in agriculture, hunting and fishing, ecotourism, forest production and use, as well as the conservation of wildlife habitat is an important goal of the faculty in NREM.

The NREM faculty support undergraduate and graduate programs in Fire Ecology, Fisheries, Forestry, Rangeland, and Wildlife. The NREM curriculum prepares students to plan, implement, and research the management, protection, and sustainable use of natural resources within Oklahoma and throughout the world. The department provides an integrated education in renewable natural resource management, conservation, and utilization, as well as a valuable perspective for understanding and solving critical contemporary and environmental problems at local, regional, and global scales.


**NREM Degree Options.**

**Fire Ecology and Management** option was developed in response to the need for understanding the ecological role and management of wildfire fire in natural ecosystems, and the importance and implementation of prescribed fire in land management. This option offers students the opportunity to accomplish professional goals and management through the prescribed burning network. The curriculum combines experience with prescribed fire plans, policy and law, weather, equipment, conducting prescribed burns, and post-burn management. In addition, students will be assisted in completing federal fire training requirements.

**Fisheries and Aquatic Ecology** is an option designed for students with interest in the management of fish populations and habitats. Courses offer research techniques and methodology in fisheries science, including sampling design, habitat measurements, sampling techniques and abundance estimation, age and growth analysis, recreational surveys, data analysis and report writing.

**Forest Ecology and Management** emphasizes the science-based conservation and management of forest lands, ecosystems and related natural resources. Students gain the skills that are necessary for the measurement, assessment, and valuation of natural resources and the evaluation of management strategies for forest and related wildlands. Successful completion of the curriculum will provide competency in the general areas of basic science, 2014-2015 University Catalog
forest biology, forest mensuration, forest economics, natural resource policy, decision-making and problem solving, and communications. The option is accredited by the Society of American Foresters (SAF), the specialized accrediting body for forestry programs in the U.S. Requirements for this option include a successful completion of three, three-week field camps in May, which are scheduled to follow the sophomore and junior years, and are held annually in diverse forest settings. Field forestry skills, forest ecology, integrated natural resource management, and state-of-the-art operations are emphasized at camp.

Natural History and Conservation option provides a broadly integrated sciences educational background for classification, behavior and ecology of plants and animals with an emphasis on natural history and conservation. The option specifically prepares students for careers in environmental stewardship and outdoor education and stresses the development of excellent communications, interpersonal, and leadership skills.

Rangeland Ecology and Management program emphasizes understanding management of grasslands, shrub lands, and forests for forage and habitat production. This includes the effects of grazing, fire, and other disturbances on biotic and abiotic processes. Students learn to integrate their knowledge of soil, water and vegetation attributes into management of public or private wild lands for multiple uses.

Wildlife Ecology and Management option explores the biological basis for management of wildlife populations and habitats, with emphasis on current management problems. This option combines research techniques, including aging and sexing, wildlife and vegetation sampling, and wildlife population and habitat analysis with the methodology of wildlife science.

Wildlife Biology and Preveterinary Science option provides ecological background and training in natural wildlife science and population dynamics in addition to the basic sciences necessary to prepare students for graduate education in veterinary and wildlife medicine. The option combines research and management training in population ecology with basic biology and chemistry.

Students entering the NREM department are encouraged to join and become active members of one of the many student organizations: Society of American Foresters, Society for Range Management, The Wildlife Society, and the American Fisheries Society. Participation in one or more of these organizations provides students the opportunity to attend state, regional, or national meetings where they will gain valuable advantages through networking, student competitions, and interacting with various career-related activities.

Graduate Programs

The Department offers the MS and PhD degrees in Natural Resource Ecology and Management with specializations in Fisheries and Aquatic Ecology, Forest Resources, Rangeland Ecology and Management, and Wildlife Ecology and Management. In addition, students may work toward the MS and PhD degrees in the Environmental Science Graduate Program and the PhD degree in the Plant Science Graduate Program with faculty members from the Department. The department also offers a Grassland Management Graduate Certificate through on line courses.

The overall goals of the Department are to provide high quality advanced training and instruction in the application of the scientific method to problems in natural resource ecology and management. This includes problem analysis and identification, research methods, synthesis of results and communication of findings. The Department strives to develop the capability for original and creative work under the guidance of established professionals and scientists. Graduate instruction is a critical component of the research, instruction and extension missions of the Department.

Students work directly with a member of the faculty to design a program of study to serve individual career goals. The prerequisite for graduate study in the Department is a baccalaureate degree in an area aligned with the student's research interests with a minimum overall GPA of 3.00. Please refer to the website nrem.okstate.edu for a full description of the application process. A student must be accepted by a member of the Department's faculty prior to official admission to the program.

Plant and Soil Sciences

David R. Porter, PhD—Professor and Head

The goal of the department is to meet societal needs for food, fiber, energy, and intrinsic value related to the conservation and management of plant and soil resources. Teaching, research and extension efforts are designed to assist decision makers in matters regarding land management.

Undergraduate students select an option of study from: agronomic business, crop production and management, plant biotechnology and improvement, or soil and water resources. Students may choose to specialize in an area such as: entrepreneurship, forage and livestock production, pest management, plant genetics, precision agriculture, or environmental management. In addition, students can fulfill prerequisites for professional programs such as pharmacy school. Students interested in professional certification will complete the necessary course requirements in their degree programs. Students have flexible options to work with their academic advisors to develop a plan of study to suit their interests. Many undergraduate students work with the research faculty on projects providing the student an opportunity to assist in gathering new information related to plant breeding and genetics, biotechnology, environmental remediation, plant physiology, crop production, weed science, soil nutrient management, soil chemistry, soil physics, water quality, and land restoration.

Upon completion of a Bachelor of Science program, students are employed by private firms, public institutions, state and federal agencies, or non-profit organizations that require personnel with expertise in plant and soil systems. Typical careers include: federal employment in soil and rangeland conservation; crop consulting; technical sales and service for seed, fertilizer or agricultural chemical supply companies; farm or ranch operation; research positions as plant and soil scientists with federal agencies, state agricultural experiment stations or private industries; teaching and extension positions with colleges and universities; and a broad range of natural resource management and soil and water management positions.

Graduate Programs

Programs of course work and research are offered leading to the Master of Science degree in Plant and Soil Sciences. The Doctor of Philosophy degree can be attained in Crop Science and Soil Science. Specific programs are available in the areas of plant breeding and molecular biology, biotechnology, bioenergy, environmental remediation, forage and pasture management, weed science, crop physiology, crop management, conservation cropping systems, soil morphology and genesis, soil microbiology, soil fertility and plant nutrition, soil physics, soil-water management, soil chemistry, soil and water quality, and waste management. Applicants should indicate their specific area of interest upon application. Plant and Soil Sciences faculty also serve on advisory committees for the Environmental Science and Plant Science interdisciplinary degree programs.

The graduate programs in Plant and Soil Sciences prepare individuals for successful careers in a variety of areas including research, teaching, environmental sciences, waste management, farming and ranching, extension education, agricultural business, and all aspects of crop production.

Prerequisites. Admission to the graduate program requires a BS degree in Plant and Soil Sciences, Agronomy or a closely related field. Applicants should have completed basic courses in plant and soil sciences, agronomy, biology, chemistry and mathematics required of undergraduate majors. Deficiencies in fundamental course requirements will be met by the student with the direction of the student’s advisory committee. Applicants must be accepted by an adviser in an appropriate discipline prior to official admission.

Degree Requirements. Students must follow approved plans of study that meet the minimum University and program requirements for the respective degrees they are pursuing.

The Master of Science degree in Plant and Soil Sciences may be earned by using the thesis option. This plan requires a minimum of 30 credit hours of course work, including six credit hours of PLNT or SOIL 5000, master's thesis.

The Master of Agriculture degree may be earned by utilizing one of three options:

Option A—Formal report (non-thesis), minimum of 32 credit hours of course work, including two credit hours of PLNT or SOIL 5000, master's thesis.

Option B—Minimum of 36 credit hours of course work and a creative component.

Option C—Minimum of 36 credit hours of course work including six hours of credit (PLNT or SOIL 5230, Research) for a professional internship. Applicants for the professional practice option must submit a formal report. Internships for students with previously established vocations and career experience must be in areas other than the specific vocational field of the students.

The degree plans of study for the Doctor of Philosophy degree in Crop Science and Soil Science are developed individually for each candidate. Doctoral programs in Crop Science and Soil Science require 60 credit hours beyond the MS degree, including a minimum of 15 credit hours of PLNT or SOIL 6000 (Dissertation). All students must meet certain requirements in basic disciplines such as: statistics, mathematics, botany, and chemistry. Study of a foreign language is not required, but can be incorporated if the student and advisory committee feel that it is desirable.
College Administration

Bret S. Danilowicz, PhD—Dean
Bruce C. Crauder, PhD—Associate Dean for Instruction and Personnel
Thomas A. Wike, PhD—Associate Dean for Academic Programs
Ronald A. Van Den Bussche, PhD—Associate Dean for Research
Amy Martindale, EdD—Student Academic Services Director
Jason Caniglia, MPA—Development Director
H. Walter Shaw, MA, MBA—Outreach Director
Renée G. Tefertiller—Fiscal Affairs Director

Campus Address and Phone:
201 Life Sciences East, Stillwater, OK 74078
405.744.5663 Fax: 405.744.1797
Website: www.cas.okstate.edu

The College of Arts and Sciences not only offers a wide variety of programs in teaching, research and outreach, but also supports and reinforces all the other programs of the University. Apart from strong programs in the natural and social sciences and in the liberal and fine arts, the College provides a number of more specialized and interdisciplinary strengths and a variety of professional and pre-professional training. The College’s 22 departments and two schools offer 62 degree programs and options at the bachelor’s level, and in conjunction with the Graduate College, 29 master’s and 15 doctoral degrees.

The Department of Economics and Legal Studies in Business in the Spears School of Business offers BA and BS degrees through the College of Arts and Sciences. The Department of Biochemistry and Molecular Biology in the College of Agricultural Sciences and Natural Resources also offers the BS through the College of Arts and Sciences.

The College of Arts and Sciences provides academic preparation for a wide variety of professions and graduate programs including: law, medicine, nursing, optometry, veterinary medicine, graphic arts, teaching, writing, foreign service, urban and regional planning, journalism, public service, radio/TV, advertising, public relations, medical technology, military science, public affairs, corrections, social services, and fine and performing arts.

Accreditation

Refer to departmental listings that follow for information on accreditation of specific programs.

High School Preparation

In addition to the curricular requirements for admission specified by the Oklahoma State Regents for Higher Education, The College of Arts and Sciences strongly recommends that high school students have a fourth year of mathematics; a third year of laboratory science; at least two years of a single foreign language; one year of arts such as music, theatre, or studio art, and computer literacy.

Scholarships

A number of undergraduate scholarships are available through the College and through the departments and schools within the College. Interested students should inquire in the Office of Student Academic Services or access the OSU Internet site for a list of available scholarships. Arts and Sciences students are also encouraged to apply for the variety of scholarships available through the University’s Office of Scholarships and Financial Aid.

Student Success Center

The Arts and Sciences Student Success Center is comprised of four units listed below. University-wide coordination of pre-professional advising is provided through the Center, so regardless of major, pre-law students may consult with an adviser in Student Academic Services, and pre-health students may consult with an adviser in Life Sciences and Pre-Health Advising.

Student Academic Services. The academic advising process in Arts and Sciences is coordinated by Student Academic Services. The advising staff in Student Academic Services advises freshmen and undecided students. Departmental advisers provide advising for students who have declared their majors. The general education program in the College of Arts and Sciences allows undecided freshmen to make progress toward most degrees for up to three semesters, while exploring possible fields of study with an academic adviser. The responsibility for satisfying all requirements for a degree and for ensuring that a degree plan has been submitted rests with the student. Advisers assist students in curriculum planning, and students are encouraged to consult fully with their advisers.

The Student Academic Services staff represents the College in the University’s recruiting activities and represents the dean in such matters as petitions for excessive hours, change of major or college, and student withdrawals. Services also include graduation certification, information about college programs and requirements, and referral of A&S students to campus support services.

Career Services. The primary goal of A&S Career Services is to promote academic excellence to enhance career planning and lifelong success. Services offered include career counseling, job and internship search strategies, and assistance with preparation of resumes and cover letters. Presentations on a wide-range of career-related topics are offered to classes and clubs.

Life Sciences and Pre-Health Advising. This unit advises students within the major fields of life science study through the departments of botany, microbiology & molecular genetics, and zoology and students interested in pursuing a career in health professions. The pre-health professions curriculum at OSU prepares students to be competitive applicants to health professions program through a wide variety of educational, research, leadership and volunteer opportunities and a comprehensive advising system.

Outreach. The mission of A&S Outreach is to extend intellectual resources, disseminate knowledge to learners at any time and any place, and provide lifelong learning opportunities. This is accomplished through offering high school and collegiate distance learning courses, international credit courses, and field trip courses. Outreach also coordinates academic conferences, industry workshops and seminars, and cultural outreach opportunities.

Academic Programs

Undergraduate Programs. Requirements for all degree programs and options are detailed in Undergraduate Programs and Requirements publication available online at registrar.okstate.edu. Separate sheets, stating the requirements for any particular degree, may be obtained on request from the department or college in which the degree is offered.

Bachelor of Arts (BA):
- American studies
- art (art history and studio)
- economics
- English
- French
- geography
- German
- history
- liberal studies
- mathematics
- multimedia journalism
- music
- philosophy
- political science
- psychology
- Russian language and literature
- sociology
- Spanish
- sports media
- strategic communication
- theatre

Bachelor of Science (BS):
- biochemistry
- biological sciences
- botany
- chemistry
- communication sciences and disorders
- computer science
- economics
- geography
- geology
- liberal studies
- mathematics
- microbiology/cell and molecular biology
- multimedia journalism
- physics
- physiology
- political science
- psychology
- sociology
- sports media
- statistics
- strategic communication
- zoology

The Arts and Sciences Student Success Center is comprised of four units listed below. University-wide coordination of pre-professional advising is provided through the Center, so regardless of major, pre-law students may consult with an adviser in Student Academic Services, and pre-health students may consult with an adviser in Life Sciences and Pre-Health Advising.
Bachelor of Fine Arts (BFA): art (graphic design and studio)
Bachelor of Music (BM): elective studies in business music education (instrumental/vocal certification) performance

Second Bachelor's Degree. To secure a second bachelor's degree, a student must complete a minimum of 30 semester credit hours in addition to those required for the first degree. The number could be higher depending on what a student must do to satisfy all the requirements for the second degree. A student seeking a second degree in the College of Arts and Sciences at OSU should ask his or her second adviser to submit a degree plan for the second degree, clearly headed "second degree," and showing how all the requirements of the second degree are to be satisfied. The second degree plan should be sent to the College of Arts and Sciences Office of Student Academic Services no later than two weeks after the student's last enrollment.

Students wishing to complete degrees in two different colleges at OSU should consult with each office of student academic services. Concurrent enrollment in two colleges is possible.

Second Majors and Minors. A student majoring in one field may also complete the specified requirements for a "major" or a "minor" in other fields. The additional majors or minors may be noted on the student's transcript. Such specified requirements may be obtained from the department in which the second major or minor is sought, or from the Office of Student Academic Services. The student must formally declare each major and minor by completing a declaration form with each respective college. During the semester in which the student is enrolled in courses that will complete the second major or minor the student should ask the adviser in the second major or minor to submit certification of completion of the required courses to the Office of Student Academic Services in the College of Arts and Sciences.

Graduate Programs. Twenty-five master's degrees are offered in the College along with 15 doctoral degrees. For details, see the departmental entries that follow or consult the "Graduate College" section in the Catalog.

Special Academic Programs

The Honors College. The College of Arts and Sciences has honored courses since the 1960s and has the greatest number of students and faculty participating in The Honors College at Oklahoma State University. The College provides outstanding students with the opportunity to study, conduct research and interact with faculty and other honors students in a variety of settings designed to assist talented students who seek to make the most of their educational opportunities. Honors sections of many general education courses allow participating students the benefits of small classes taught by experienced members of the faculty, thus combining the extensive resources of a major comprehensive university with personal faculty attention to each student. Special honors seminars provide coverage of topical issues each semester in formats that encourage the exchange of ideas through discussion and writing. Honors seniors complete the requirements of The Honors College by undertaking a senior honors thesis (or similar creative activity), and honors seniors also may apply for honors credit by enrollment in graduate seminars.

Three Honors College awards are available to A&S students—the General Honors award, the Departmental Honors award in the student's major field, and The Honors College degree (which is earned by completing both General and Departmental Honors requirements with a minimum of 39 honors hours with a 3.50 OSU and cumulative grade-point averages). These awards are reflected on the student's transcript and a special honors diploma is awarded to students completing the requirements for The Honors College degree. Priority enrollment is provided for students who are active in The Honors College. This allows honors students to select honors courses and other courses taught by outstanding faculty at the earliest possible date each semester and facilitates the development of class schedules tailored to the special needs of honors students. Eligibility for admission to The Honors College as a first-semester freshman is based on an ACT composite score of 27 or higher (or comparable SAT score), a high school grade-point average of 3.75 or higher. Later entry for students with seven or more credit hours is permitted on the basis of OSU and cumulative grade-point averages. Transfer students with seven or more credit hours are eligible on the basis of cumulative grade-point average.

Bachelor of University Studies (BUS). The BUS in the College of Arts and Sciences allows students with unique educational objectives that cannot be fulfilled by any of the existing programs to design an individual plan of study fitted to the student's particular needs. BUS plans must be approved by the director of A&S Student Academic Services, and the Office of the Provost and Senior Vice-President.

Geographic Information Systems Certificate. The Geographic Information Systems (GIS) certificate provides a specialized course of study for interested students. The flexible program provides students with a theoretical and applied foundation concerning the rapidly growing field of GIS. The program is open to any student at Oklahoma State University. For more information, contact the GIS Certificate coordinator in the Department of Geography, 337 Murray Hall.

High School Teaching Preparation. Students earning degrees in the College of Arts and Sciences may, by completing certain courses, receive state licensure for teaching in the secondary schools. Full details may be obtained from the OSU Professional Education Unit in the College of Education, 325 Willard.

Pre-professional Programs in the Health Professions. Pre-medicine, Pre-dentistry, Pre-optometry, Pre-pharmacy, Pre-chiropractic and Pre-veterinary Medicine.

The pre-professional curricula for physicians, dentists, podiatrists, optometrists, pharmacists, chiropractors and veterinarians have the same basic core because they must prepare students for professional schools whose admission requirements are almost identical. These include a strong foundation in math, chemistry, physics and biology, the disciplines on which major advances in the health field depend. Included also are courses to develop written and spoken communication skills, which are highly important for a good relationship with patients, the public and other professionals.

Beyond this required core, pre-professional students may choose courses and a major as freely as any other students in the College of Arts and Sciences. Medical schools encourage study in the social sciences and humanities that contribute to the understanding of human beings in the context of their society, history and environment, their attitudes and values, their emotions, motivations, interpersonal relationships and cultural heritage. All of these may affect sickness and health.

Some professional schools do not state a firm minimum grade-point average for admission, but a student should maintain better than a 3.0 grade-point average to be competitive. The specific admission requirements of medical, dental and veterinary schools are available on the Internet and in the Office of Life Sciences and Pre-health Advising, the OSU pre-medical and pre-veterinary course requirements are listed in the "Center for Veterinary Health Sciences" and the "Center for Health Sciences" sections of the Catalog. Students whose goal is admission to medical, dental, podiatry, optometry, pharmacy or veterinary programs should consult with a pre-health adviser in the Office of Life Sciences and Pre-health Advising for information regarding specific requirements of these programs.

Allied Health Professions. The allied health professions for which one can prepare at Oklahoma State University include dental hygiene, nursing, occupational therapy, physical therapy, physician's associate and medical imaging and radiation sciences. The College of Arts and Sciences offers the general education and basic science courses that a student must complete before he or she can be accepted into a professional program. Competitive students may be accepted into these programs after completing 60-80 hours of general education work, depending on the health profession. Students seeking admission to a professional program in the allied health professions should consult with a pre-health adviser in the Office of Life Sciences and Pre-health Advising, located in room 213 Life Sciences East for information regarding the specific requirements of particular programs and schools.

Clinical Laboratory Science. See "Department of Microbiology and Molecular Genetics."

Pre-Law Preparation. Law schools have no single preference for a specific undergraduate major. Admission to law school is primarily based on a strong record achieved in a rigorous undergraduate program and a competitive score on the Law School Admission Test (LSAT). Other admission considerations include course of study and difficulty of curriculum; letters of recommendation; work and leadership experiences; and applicant's background and motivation as revealed in an application essay.

Law school admissions officers most frequently recommend students include in their undergraduate programs courses which develop strong reading, writing and critical thinking skills as these verbal and analytical abilities are particularly critical for success in law school.

Personal assistance in selecting an academic major, planning a solid pre-law curriculum, preparing and registering for the Law School Admissions Test and applying to law school is available through the pre-law adviser in Student Academic Services.

Graduation Requirements

General Education Requirements. The General Education Requirements for the degrees offered by the College are shown for each program in Undergraduate Programs and Requirements. At least 40 credit hours of General Education are required for all degrees.

All degrees include a common core of 12 credit hours. Three credit hours of American history and three hours of American government are required. These must be satisfied by HIST 1103, 1483 or 1493, and POLS 1113. Six credit hours of English composition is a University requirement, and this must be satisfied by

Bachelor of Fine Arts (BFA): art (graphic design and studio)
Bachelor of Music (BM): elective studies in business music education (instrumental/vocal certification) performance
ENGL 1113 or 1313 and 1213 or 1413. Students who obtain a grade of "A" or "B" in ENGL 1113 may substitute ENGL 3323 for ENGL 1213 with permission of their departments.

The remaining 28 credit hours must be distributed as follows: six hours of analytical and quantitative thought, six hours of humanities, eight hours of natural sciences, six hours of social sciences, and two hours of General Education elective. (See "University Academic Regulations" and Undergraduate Programs and Requirements publication, available at registrar.okstate.edu.

College Requirements. In addition to the 40 hours of general education, the college requires one credit hour of orientation, (A&S 1111), for all degrees. For the BS, nine additional hours of natural or mathematical sciences are required, as well as three additional hours from the arts and humanities. For the BA, nine additional hours of arts and humanities are required, as well as three additional hours of natural or mathematical sciences and a course focused on non-Western culture. College requirements define the BA or BS degree in the College of Arts and Sciences.

Foreign Language Proficiency Requirement. The foreign language requirement for the BA or BS degree may be satisfied by 10 hours of college credit in the same language, or equivalent proficiency (e.g., passing an advanced standing exam or completing a second-year or higher college-level language course in the language; etc.). RUSS 3033, 3123, 4113, and 4223 do not satisfy this requirement.

The foreign language requirement for the BA, BM, and BFA degrees may be met by presenting a high school transcript that demonstrates successful completion of two years of study in a single foreign language. It may also be satisfied by any of the options listed above for the BA.

Non-Western Requirement (BA and BFA only). One three-hour course in Non-Western studies from: AMIS 2013, 4013, ANTH 3443, 4223; ART 3693, 4693, 4694, 4695, 4696, 4703, 4783, 4784, 4785; CHIN 1225, 2225; ECON 4843; ENGL 3173, 3183; ENGL 3910 (African Novel; Post-Col Mult Ethnic Lit); FLL 1000 (Arabic 2, Nslovk 2); GEOG 3053, 3753, 3763, 3783; HIST 1713, 3013, 3043, 3053, 3203, 3403, 3413, 3423, 3433, 3503, 3513, 3533, 3553; HONR 3033; JAPN 1225, 2225, 2226; MUSI 3583; PHIL 3943; POLS 3053, 3063, 3073, 3083, 3093, 3113, 3133, 3143, 3153, 3163, 3173, 3223, 3233, 3313, 3323, 3333; REL 3573, 3613, 4050 (Understanding Islam; Rel & Sects of Mid-East), 4113, 4213; RUSS 3033, 3123, 4113, and 4223 do not satisfy this requirement.

Foreign Language Proficiency Requirement. The foreign language requirement for the BA or BS degree may be satisfied by 10 hours of college credit in the same language, or equivalent proficiency (e.g., passing an advanced standing exam or completing a second-year or higher college-level language course in the language; etc.). RUSS 3033, 3123, 4113, and 4223 do not satisfy this requirement.

Diversity Requirement (all degrees). One course which emphasizes one or more socially constructed groups (e.g. racial, ethnic, religious, gender, age, disability, sexual orientation) in the United States. Courses satisfying this requirement are designated "D" in the Catalog and a list is available from the Office of Arts and Sciences Student Academic Services or on the SIS Internet site.

International Dimension Requirement (all degrees). One course which fosters understanding of, or the ability to communicate with, peoples and cultures of other countries. Courses satisfying this requirement are designated "I" in the Catalog and a list is available from the Office of Arts and Sciences Student Academic Services or on the SIS Internet site.

Scientific Investigation Requirement (all degrees). One course including an investigative laboratory that provides experience with scientific method. Courses satisfying this requirement are designated "L" in the Catalog and a list is available from the Office of Arts and Sciences Student Academic Services or on the SIS Internet site.

The non-western, international dimension, and scientific investigation requirements may be satisfied by courses used also to satisfy any other part of a student's degree program (i.e., in General Education, College, Major, or Electives requirements). No additional hours are required.

Additional College Requirements. For all degrees, six hours of general education designed courses (excluding courses in the major prefix) are to be taken at the 3000 level or above.

Major Requirements. At least 40 semester credit hours as specified by the department, including courses in the major and in supporting fields, must be completed.

Upper-Division Credit. A student must successfully complete at least 40 semester hours of upper-division credit, i.e. credit in courses at the 3000 or 4000 level.

Hours in One Prefix. If a student seeking a BA or BS degree takes more than 54 semester credit hours in one subject, including lower-division and upper-division credit, the hours in excess of 54 will be added to the minimum total hours required for the degree.

This "54 hour maximum" applies to all courses taken in a subject, whether they are required or elective, with the exception of required courses in English composition and American history and government.

Total Semester Credit Hours and Grade-point Average. The minimum number of semester credit hours for an Arts and Sciences degree is 120. The minimum grade-point average is 2.00 and must be earned in all major courses, in Major Requirements and in all courses applied toward the degree. A minimum cumulative grade-point average of 2.00, as calculated for graduation purposes, is also required. (See "University Academic Regulations" in the Catalog.)

Particular degree programs may specify higher grade-point requirements or exceed the 120 hour minimum. Details are given in the Undergraduate Programs and Requirements publication, available at registrar.okstate.edu.

Endorsement of Student's Plan (Graduation Check). Immediately after their last enrollment, and before their last semester, students should check with their advisers to be certain a degree plan has been sent to the Arts and Sciences Office of Student Academic Services.

Changes in Degree Plan. Once a degree plan has been submitted, a student will not graduate until all requirements on it have been fulfilled. Any deviation in the plan must be recommended by the adviser and submitted by email to Graduation Certification staff in the Arts and Sciences Office of Student Academic Services for approval.

Checklist of Graduation Requirements.

1. Total hours. Minimum 120 (see degree sheet). Hours of "F" or "I," or in repeated courses (unless allowed in course descriptions in the Catalog), do not apply. Zero-Level courses and all athletic participation and leisure activity courses are not applicable to a degree. Students must confirm grade changes for the removal of "I"s" have been sent to the Office of the Registrar by the instructor who gave the "I."

2. Grade-point average. See individual degree sheets for all grade-point requirements. In general, overall, in major prefix courses, and in major requirements.

3. Validity of credits.
   a. No more than two courses (or eight hours) from the major department may be used to meet General Education and College and Departmental Requirements. The General Education Controlled Elective required English Composition, required U.S. History, required American Government, and one required MATH course do not count against the two-course maximum.
   b. A course used in the Major Requirements may not be used to satisfy any other degree requirement, except the diversity, international dimension, scientific investigation, upper-division general education, and non-Western requirements.
   c. Pass-No Pass Grading System. Courses taken on this campus under the Pass-No Pass Grading System (see "University Academic Regulations") may be used only as elective hours. They cannot satisfy any other requirement (General Education, Departmental, Major Requirement, and certification).

4. All degree requirements listed above and specified in "University Academic Regulations" and Undergraduate Programs and Requirements must be satisfied.

5. Exemption. A student who believes he or she has a valid reason for exemption from a College requirement should file a written request that has been approved by his or her adviser with the director of Student Academic Services.

Departmental Clubs and Honor Societies

Advertising Club
Alpha Delta Sigma (advertising honor society)
Alpha Epsilon (health pre-professional honor society)
Alpha Epsilon (national broadcast society)
Alpha Kappa Delta (sociology honor society)
American Association of Petroleum Geologists Student Chapter
American Choral Directors Association
American Institute of Graphic Arts Student Chapter
American Medical Student Association
American Student Dental Association
Army Blades
Arnold Air Society
Art Association
Art History Organization
Arts and Sciences Student Council
Association for Computing Machinery
Association for Women in Communications
Association for Women in Sports Media
Association of Women in Geoscience
Beta Beta Beta (national biological sciences honor society)
Botanical Society of OKU
Christian Medical and Dental Association
Claude Rains Appreciation Society (film society)
Collegiate Music Educators National Conference
Creative Writers Association
Delta Nu Alpha (biochemistry club)
ECS-OSU
English Club
English Graduate Student Association
Forum of Geography Graduate Students
French Club
Friends of the Films (philosophy)
Gamers of OSU
Gamma Theta Upsilon (geography)
Geographic Information Systems Club
Geography Club
Geological Society of OSU
Geology Graduate Student Association
Geophysical Society of OSU
German Club

2014-2015 University Catalog
The Department of Art, Graphic Design and Art History offers courses for students who are interested in the visual arts or wish to major in studio art, graphic design or art history. Minors are also available in studio art and art history. Fields of concentration include drawing, oil and watercolor painting, printmaking, graphic design, electronic media, ceramics, jewelry/metal smithing, sculpture and art history.

The Bachelor of Art (BA) includes options in art history and studio art that can be combined with teacher certification; the Bachelor of Fine Arts (BFA), is a professional degree with options in studio art or graphic design.

In order to qualify for graduation, art majors have grade-point averages in Art Department courses of 2.50 for a BA in Studio Art, 3.0 for a BA in Art History, and 2.75 for a BFA in Studio Art or Graphic Design.

Students who wish to major in graphic design must have a minimum overall GPA of 2.75 to enroll in 2000 level graphic design courses. A student must take three 2000 level courses before enrolling in 3000 level courses (typically in the sophomore year), which is scheduled each spring semester. Students who wish to transfer into the graphic design program with earned credit in these courses are subject to the same review and must submit portfolio materials with application for admission into the program. The Department determines those students who are qualified to proceed to 3000 level graphic design courses. Students who pass the graphic design portfolio review are furthermore required to purchase a MacBook Pro laptop computer for use in the classroom and at home. Specifications are available on the Department’s website, http://art.okstate.edu.

The Department of Art, Graphic Design and Art History is able to offer substantial scholarships at all levels, freshman through senior on a competitive basis.

The Gardiner Art Gallery in the Bartlett Center for the Visual Arts, the Department’s main building, hosts up to ten exhibitions per year. Exhibitions include the work of national and international artists as well as faculty and students.

Graduate Programs

The Department of Art, Graphic Design and Art History offers an MA Program in Art History. This program differs from most traditional art history programs through its emphasis on intercultural connections, globalization and transnationalism. The program includes a broad geo-cultural spectrum with six full-time faculty members who specialize in the art of the Americas, Europe and Asia. In partnership with the OSU Museum of Art, Postal Plaza Gallery and the Gardiner Gallery in the Bartlett Center, students may also take coursework and gain hands-on training in museum and curatorial studies.

Admission Requirements. Applicants must complete the online application (including the submission of transcripts, fee, and for international students, TOEFL scores), to be found at grad.okstate.edu. In addition, applicants should also submit three letters of recommendation, a statement of purpose, and a writing sample (5-10 pages; an excerpt from a longer work is acceptable). Prerequisites include five undergraduate courses in art history; foreign language experience is also recommended. While many applicants will have majored in art history, the MA program welcomes applications from graduates with bachelor’s degrees in other fields. MA students may take prerequisites during the program; however, they will not count toward the 30 hours required for graduation.

The Master of Arts Degree. The MA degree requires a minimum of 30 hours of graduate coursework, a thesis, and a defense. Students will select two geographic areas of concentration within the five currently offered in the Department of Art, one to be the major area and the other the minor (the current areas are Europe, United States, Latin America, East Asia (China and Japan), and the Middle East/Islamic World). A selection of courses, both inside and seminar, will be taken in these areas. At least one course outside the department will be in the major area. Generally, the master’s thesis will relate to the cultural connections between the major and minor areas.

American Studies

Stacy Takacs, PhD—Associate Professor and Director

American Studies offers a systematic understanding of the culture and society of the United States of America from a multidisciplinary perspective. Students examine American beliefs, behaviors, symbols, and material objects in a wide variety of institutional and cultural locations.

Our curriculum combines structure with latitude in course selection. In addition to three required courses in American Studies, students gain a foundation in American literature and history. Additional courses are selected in the fine arts, humanities and social sciences.

Work in American Studies provides the critical thinking and communication skills valued by employers in a wide variety of fields. Graduates have pursued successful careers in journalism, radio, TV and film work, museum curating, public relations, editing, advertising, government service, secondary school teaching, and administration, and creative writing. With additional education, some American Studies majors have attained professional careers in law, public diplomacy, and higher education.

Art, Graphic Design and Art History

Rebecca Brien, PhD—Professor and Head

The Department of Art, Graphic Design and Art History offers courses for students who are interested in the visual arts or wish to major in studio art, graphic design or art history. Minors are also available in studio art and art history. Fields of concentration include drawing, oil and watercolor painting, printmaking, graphic design, electronic media, ceramics, jewelry/metal smithing, sculpture and art history.

The Bachelor of Art (BA) includes options in art history and studio art that can be combined with teacher certification; the Bachelor of Fine Arts (BFA), is a professional degree with options in studio art or graphic design.

In order to qualify for graduation, art majors have grade-point averages in Art Department courses of 2.50 for a BA in Studio Art, 3.0 for a BA in Art History, and 2.75 for a BFA in Studio Art or Graphic Design.

Students who wish to major in graphic design must have a minimum overall GPA of 2.75 to enroll in 2000 level graphic design courses. A student must take three 2000 level courses before enrolling in 3000 level courses (typically in the sophomore year), which is scheduled each spring semester. Students who wish to transfer into the graphic design program with earned credit in these courses are subject to the same review and must submit portfolio materials with application for admission into the program. The Department determines those students who are qualified to proceed to 3000 level graphic design courses. Students who pass the graphic design portfolio review are furthermore required to purchase a MacBook Pro laptop computer for use in the classroom and at home. Specifications are available on the Department’s website, http://art.okstate.edu.

The Department of Art, Graphic Design and Art History is able to offer substantial scholarships at all levels, freshman through senior on a competitive basis.

The Gardiner Art Gallery in the Bartlett Center for the Visual Arts, the Department’s main building, hosts up to ten exhibitions per year. Exhibitions include the work of national and international artists as well as faculty and students.

Graduate Programs

The Department of Art, Graphic Design and Art History offers an MA Program in Art History. This program differs from most traditional art history programs through its emphasis on intercultural connections, globalization and transnationalism. The program includes a broad geo-cultural spectrum with six full-time faculty members who specialize in the art of the Americas, Europe and Asia. In partnership with the OSU Museum of Art, Postal Plaza Gallery and the Gardiner Gallery in the Bartlett Center, students may also take coursework and gain hands-on training in museum and curatorial studies.

Admission Requirements. Applicants must complete the online application (including the submission of transcripts, fee, and for international students, TOEFL scores), to be found at grad.okstate.edu. In addition, applicants should also submit three letters of recommendation, a statement of purpose, and a writing sample (5-10 pages; an excerpt from a longer work is acceptable). Prerequisites include five undergraduate courses in art history; foreign language experience is also recommended. While many applicants will have majored in art history, the MA program welcomes applications from graduates with bachelor’s degrees in other fields. MA students may take prerequisites during the program; however, they will not count toward the 30 hours required for graduation.

The Master of Arts Degree. The MA degree requires a minimum of 30 hours of graduate coursework, a thesis, and a defense. Students will select two geographic areas of concentration within the five currently offered in the Department of Art, one to be the major area and the other the minor (the current areas are Europe, United States, Latin America, East Asia (China and Japan), and the Middle East/Islamic World). A selection of courses, both inside and seminar, will be taken in these areas. At least one course outside the department will be in the major area. Generally, the master’s thesis will relate to the cultural connections between the major and minor areas.

Biochemistry and Molecular Biology

John E. Gustafsson, PhD—Professor and Head

Biochemistry, the central scientific discipline linking the chemical, physical and biological sciences, exerts a profound influence on the progress of medicine and agriculture. By applying concepts and methods of chemistry and physics to the fundamental problems of biology, biochemists have made great progress in their effort to understand the chemistry of living organisms. Major discoveries concerning the biochemistry of genetic material provide the tools of molecular biology that are essential to contemporary life sciences research.

Biochemists and molecular biologists are concerned with living things and thus, must be fluent in the concepts of the biological sciences. Since a biochemist's tools are the physical sciences, he or she must receive sound education in mathematics, physics and chemistry. Our academic programs are designed to integrate these disciplines, preparing students for a wide range for professional careers.

Challenging positions for well-trained biochemists and molecular biologists are available in colleges and universities, state and federal laboratories, research institutes, medical centers and in an increasing number of industrial organizations, particularly the pharmaceutical and food industries. Biochemists are involved with research on the chemistry of processes occurring in plants, animals, and various microorganisms, and with the discovery and development of antibiotics, vitamins, hormones, enzymes, insecticides and molecular genetics techniques.
The Department of Biochemistry and Molecular Biology offers a BS degree in biochemistry through the College of Arts and Sciences and a BS degree in biochemistry and molecular biology with two options through the College of Agricultural Sciences and Natural Resources. An honors program is available in both colleges. Undergraduate curriculum provides a broad background in chemistry and biological sciences and permits flexibility to meet particular interests of the student. Courses in biochemistry are based on general, organic and analytical chemistry. The biochemistry and molecular biology undergraduate curriculum also provides students with sufficient background in the basic sciences of mathematics, physics, chemistry and biology needed for graduate study in most scientific and professional fields. The curriculum is excellent for pre-professional students of medicine, dentistry, pharmacy, and veterinary medicine. The Department’s research activities provide opportunities for part-time employment of undergraduate majors to improve their professional competence.

4+1 Year Masters by Coursework
Students interested in the 4+1 Year Masters by Coursework program are eligible for admission when they have completed or are in the process of completing a minimum of 18 hours of undergraduate coursework including BIOL 3713, 3723, 3813, with a minimum science GPA of 3.0. Application is made to the BMB MS Program through the OSU Graduate College after approval by the BMB Department Head in the spring semester. Students accepted into this program continue their undergraduate coursework toward a BS degree in Biochemistry (A&S) or Biochemistry and Molecular Biology (CASNR), and simultaneously take appropriate graduate coursework to be applied to the 4+1 program. Students will be admitted to the Graduate College at the beginning of the semester after the semester in which they complete a total of 120 hours, whether those hours count towards the B.S. or the M.S. degree.

Graduate Programs
Many career opportunities in biochemistry require advanced course work, and so part of the Department of Biochemistry and Molecular Biology’s curriculum is focused on its graduate program leading to the MS or PhD degree. This graduate program is also an integral part of the extensive basic research activities supported by the Oklahoma Agricultural Experiment Station.

Prerequisites.
Although a BS in chemistry or biochemistry is preferred, students with strong backgrounds in other biological or physical science disciplines are eligible for the graduate programs in Biochemistry and Molecular Biology. Individuals not having at least eight semester credit hours each of organic chemistry and calculus, plus four credit hours each of analytical and physical chemistry, must take appropriate undergraduate courses to make up deficiencies. The results of the three general GRE exams (verbal, quantitative, analytical) are required for entrance to the Graduate College. The preferred minimum GRE scores required for admission to the Biochemistry and Molecular Biology graduate program are: Verbal Reasoning 154 (64%); Quantitative Reasoning 153 (65%); and Analytical Writing 4.0 (48%).

Degree Requirements.
A more detailed description of the graduate study program in Biochemistry and Molecular Biology is available on the Department’s website: http://biochemistry.okstate.edu/graduate-program. The requirements listed below complement the general graduate requirements described in the “Graduate College” section of the Catalog. All Biochemistry and Molecular Biology graduate students are expected to attend and participate in the Department’s Graduate Student Association Journal Club and the Department’s Seminar Series throughout the academic year.

The Master of Science Degree.
Twentys-four (24) credit hours of formal graduate courses are required, including BIOL 5002, 5753, 5824, 5853, and 5930. In addition, a student must present an acceptable research thesis (six hours of BIOL 5500) and pass a final oral examination covering their thesis work and related material. Research advisers are selected at the end of the student’s first semester. A non-thesis Master of Science degree is also available. It does not require a research thesis, but requires a report and extensive technical training in the laboratory. The non-thesis MS plan requires thirty (30) credit hours of coursework and two (2) hours of research. The non-thesis MS is not recommended for students wishing to pursue a PhD.

The Doctor of Philosophy Degree.
The PhD program course requirements are determined with the assistance and approval of the student’s advisory committee and are modified whether a BS or MS has previously been earned: (a) a minimum total of (60) graduate credits are required if a student enters the PhD program having earned an MS in a related discipline; (b) a minimum total of ninety (90) graduate credits are required if a student enters the PhD program having earned no credit higher than a BS in a related discipline. A formal “Plan of Study” with a minimum of 30 credit hours of graduate coursework, a minimum of 15 credit hours of research, and a minimum total of (a) 60 credit hours or (b) 90 credit hours must be approved by the student’s advisory committee and submitted to the OSU Graduate College before completing (a) 17 credit hours or (b) 28 credit hours of a B.S. or MS has previously been earned. A committee is selected at the end of the student’s second semester. All graduate students must maintain a B average in their graduate coursework. A grade of C in a single graduate course can place the student on academic probation.

The Department offers research experience in a variety of areas. Formal PhD program coursework includes all of the courses listed for the MS degree, at least four of the advanced graduate courses in biochemistry (6000 level) including BIOL 6740, and additional courses and lab experience appropriate to the student’s interests. Each student will take a series of preliminary examinations in January of his or her third semester.

Each student also presents and defends their research thesis proposal sometime in their 4th - 5th semester, and at the end of their program presents their research and defends their dissertation in a final oral examination. The doctoral dissertation must contain a substantial original contribution to the discipline of biochemistry and molecular biology.

Bioinformatics Graduate Certificate Program
The Department of Biochemistry and Molecular Biology also offers the Bioinformatics Graduate Certificate Program - a multi-disciplinary program that involves faculty in Departments across the University. This Program’s mission is to train post-baccalaureate students in the techniques required to generate, analyze, and interpret complex biologically-derived data sets. The Graduate Certificate Program in Bioinformatics is open only to students who hold a B.S. degree in a related discipline. Additional information on this Certificate Program is available online: http://www.bioinformatics.okstate.edu/

Review Process for Admission
The Department’s Graduate Studies Committee reviews all eligible applications for the graduate program in Biochemistry and Molecular Biology. To be eligible for review, each applicant must submit an application to the Graduate College, along with transcripts of all academic records, GRE scores and TOEFL scores if their undergraduate education was in a language other than English. Applicants must submit to the Department three reference letters, a current resume, and a statement of purpose.

Botany
Linda Watson, PhD—Professor and Head
Botany, the study of plant biology, spans from molecules to ecosystems. Plants regulate global processes and form complex relationships with other organisms, and have intriguing patterns of development and diversity. Plants provide medicinal compounds, shelter, fuel, food, and oxygen, and support the existence of life on Earth. As human populations increase, the need for more and better supplies of food, fiber, and biofuels also increases. The study of botany underlies several applied sciences such as agronomy, forestry, natural resource management, horticulture, and plant pathology.

To major in botany a student should have a strong interest in life sciences with a good background in chemistry and mathematics. Majors with a BS degree are qualified to hold positions in federal and state agencies in areas such as conservation biology, habitat restoration, environmental biology, and plant inspection. They may be qualified for various research positions in private industry, such as plant biotechnology and drug development, and may qualify for secondary education certification.

Facilities used in undergraduate teaching include well-equipped plant physiology and ecology laboratories, environmental chambers, the 160-acre McPherson Preserve, and a herbarium with over 150,000 plant specimens. Faculty members conduct research in their specialty areas of plant biology including ecology, population biology, biodiversity, evolution, physiology, biochemistry, biophysics, taxonomy and systematics, genetics and development, genomics, and cell and molecular biology.

Graduate Programs
Programs of research and study leading to the degrees of Master of Science in Botany and Doctor of Philosophy in Plant Sciences.

Prerequisites.
Applicants for admission must have received a baccalaureate degree from an accredited college and should have had 40 semester hours (or equivalent) in upper-division courses in the biological and physical sciences. A grade-point average of 3.00 (on a 4.00 scale) or above is required for unconditional admission. All applicants are required to submit scores for the Verbal, Quantitative, and Analytical sections of the Graduate Record Examination (GRE). The Advanced Placement exam is not required. Applicants must have completed the following courses: (1) 30 semester hours of graduate coursework toward their BS in plant biology or a closely related major, with at least 24 semester hours being from courses related to the student’s intended area of graduate study. These courses must include foundational courses in biology, including genetics, plant biology, and general ecology, as well as courses in research methods.

Degree Requirements.
Demonstrated research competence through submission and acceptance of a thesis or dissertation is required for all botany graduate degrees. A minimum of one semester teaching experience is required of MS and PhD candidates. This requirement may be satisfied by enrollment in a college teaching practicum course (GRAD 5990).

All graduate students are expected to attend and participate in all departmental seminars.

The Master of Science Degree.
Plans of study must include 30 credit hours including six credit hours of thesis and two credit hours of seminar. At least 12 semester credit hours numbered 5000 or above are required. A minimum of three graduate courses must be taken.
The Doctor of Philosophy Degree in Plant Science. The Department of Botany is one of seven departments participating in the multidisciplinary PhD in plant science program. Students in this program have great flexibility in research and course work. The student who chooses botany as a home department has a botanical faculty adviser and will take all of the 6000 research hours in the department. To receive the PhD in plant science, students must enroll in a total of 90 credit hours beyond the BS or 60 credit hours beyond the MS. No fewer than 36 or more than 60 hours of BOT 6000 are allowed in the plan of study. Two qualifying seminars (BOT 6580) must also be included in the plan of study. Students may choose as a specialization area from one cellular and molecular, organismal, or ecological plant science. After a PhD candidate has completed most of the course work, qualifying examinations are scheduled that cover major areas of the student’s plan of study and relevant subdisciplines of plant science.

Chemistry
Frank Blum, PhD—Regents Professor, Harrison I. Bartlett Chair, and Chair
Chemistry is the science that deals with the composition, structure and interactions of matter. Materials obtained from the earth, such as ores, petroleum and natural gas, as well as those from plants and animals, such as food, fibers and medicines, are all studied and modified through chemical means. From natural materials, chemists create new and useful substances that enhance life. Chemists develop new drugs to fight disease, new agents to combat plant and animal pests, and the substances that range from the forefront in advancing new technologies to solve problems involving human and animal health, the environment, energy alternatives and conservation, and the detection of hazardous substances and crime scene investigations.

A student considering a career in chemistry should have a strong curiosity about natural phenomena, good problem solving skills and an above average work ethic. The student should want to learn more about the changes that take place in materials and use this knowledge for the betterment of humankind. Interest and ability in mathematics and physics are also helpful since these subjects are basic to the study of chemistry.

Chemists are employed in industry, government, and education. In industry, jobs range from highly focused problem solving and product development to quality control, environmental testing and even sales. A great deal of industrial research is devoted to total and drug production as well as new energy sources, materials and detection devices. State and federal agencies also employ chemists for basic research and analysis. Finally, many chemists become teachers in high schools, colleges, and universities. In addition to teaching classes, many college and university faculty members train students to do research in their laboratories. Generally, an MS or PhD degree is required for those interested in research or college level teaching.

The Department of Chemistry offers two bachelor’s degrees: (1) a BS degree that is certified by the American Chemical Society; and (2) a BS degree that requires less specialization.

Our chemical laboratories are modern and well-equipped with instruments for the determination of chemical properties, the study of chemical reactions and the detection and structure elucidation of small quantities of materials. Undergraduate research is encouraged as part of the chemistry curriculum.

Graduate Programs
Prerequisites. Students entering this program should have at least eight semester credit hours (or the equivalent) in general, analytical, organic, and physical chemistry. The physical chemistry should have been based on mathematics through calculus.

Admission Requirements. For admission, a grade-point average of 3.00 or better is generally required. Deserving applicants with grade-point averages less than 3.00 are occasionally admitted under probationary conditions. Additional support of the application is sought in the form of three letters of recommendation. Graduate Record Examination scores are not required. Recommendations on admission to the Graduate College are made on behalf of the applicant by the departmental admission officer. Acceptance by a permanent adviser is not a prerequisite for admission to the program.

Degree Requirements. A more detailed description of the graduate study program in chemistry is available in a brochure supplied by the department upon request, or on the Internet at chemistry.okstate.edu. The requirements set forth below complement the general requirements stated in the "Graduate College" section of the OSU Catalog. Attendance and participation in the departmental colloquia are required.

The Master of Science Degree. Students must complete at least 30 credit hours of graduate course work in chemistry or related fields. Each student must present an acceptable thesis dealing with a research problem and pass a final oral examination and related material. Research on the thesis problem should be started as early as possible in the graduate program.

The Doctor of Philosophy Degree. Work is offered which leads to the degree with a focus in analytical, biological, environmental, inorganic, materials, medicinal, nanotechnology, organic physical, polymer or theoretical chemistry or chemical education. The student must pass a qualifying examination in his or her field of specialization.

An acceptable dissertation must be presented which contains a substantial original contribution to the field of chemistry. The student must pass a final oral examination covering the dissertation and related material.

The Doctor of Philosophy degree requires the completion of at least 90 semester credit hours of work beyond the bachelor’s degree.

The course requirements are determined by the student and his/her advisory committee consistent with departmental requirements.

Communication Sciences and Disorders
Cheryl L. Giddens, PhD—Associate Professor and Head
The Department of Communication Sciences and Disorders offers Bachelor of Science and Master of Science degrees in Speech-Language Pathology. The undergraduate program focuses on the scientific study of normal and disordered communication processes. Emphasis is placed on developing background knowledge in phonetics, speech and language development, anatomy and physiology, speech science, and the neurogenic basis of communication. During the senior year, students are introduced to a variety of communication disorders in preparation for the Master of Science degree. All students participate in 25 hours of applied clinical observation.

Graduate Programs
The Master of Science degree program is designed to provide students with intensive course work in the various communication disorders and with a wide variety of challenging clinical rotations both on and off campus. Research investigations of the direction of the graduate presentations themselves are available to all graduate students. Students are prepared to take positions in hospitals, community speech and hearing centers, private practices, schools and other related settings, and to pursue additional graduate education at the doctoral level. All graduates meet the academic requirements for the Certificate of Clinical Competence in Speech-Language Pathology from the American Speech-Language-Hearing Association, and the Oklahoma license in Speech-Language Pathology. Additionally, many students elect to earn the state teaching certificate required to practice speech-language pathology in the Oklahoma school system.

The program holds national accreditation from the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

Prerequisites. Admission to the graduate program requires a bachelor’s degree in Communication Sciences and Disorders, or an out-of-field bachelor’s degree plus 24 hours of prerequisite course work.

Admission Requirements. Applicants for admission should have a minimum grade-point average of 3.40 in the major, strong letters of recommendation from those familiar with the student’s previous academic background, a minimum combined verbal and quantitative GRE score of 296 (old score equivalent of 1000), a minimum verbal GRE score of 153 (old score equivalent of 500), and a minimum analytical writing score of 3.5. Students not meeting the above requirements may be admitted on a provisional basis. Admission is competitive, and all application materials must be received by February 1st of each calendar year for fall admission. Completed application materials include: an online application, GRE scores, three letters of recommendation, transcripts from all undergraduate institutions, and a personal statement indicating why the applicant desires to be a speech-language pathologist. In addition, all applicants must have completed a neural anatomy and physiology course having earned a grade of “B” or better, a physics course, and a statistics course.

International students follow the same application procedure as U.S. students with one addition. If English is not the student’s native language he or she is required to score a minimum of 79 (internet-based) or 550 (paper-based) on the Test of English as a Foreign Language (TOEFL) and a minimum of 28 (21 internet-based) on the speaking portion of the TOEFL (IBT) or a minimum IELTS speaking score of 8.5 to be cleared for clinical assignments. It is especially important that students have readily intelligible spoken English—because they will be conducting therapy sessions in English. Additional Graduate College Requirements: Students who score a minimum of 42 on the combined Reading and Listening portions of the TOEFL (internet based) with a minimum score of 20 in each section are not required to enroll in remedial coursework. Remedial coursework includes enrollment in ENGL 003 during the first semester. The course carries a grade of S/U and may not be used toward minimum degree requirements. Students must enroll in ENGL 003 each semester until a grade of S is earned. Students who score less than 22 on the TOEFL Writing portion must enroll in ENGL 4893: Listening and Speaking during the first semester. Graduates are recommended to have completed a research methods and statistics course having earned a grade of “B” or better, and a physics course, and a statistics course.

An international student who fails to meet the TOEFL or IELTS requirement will be placed in a remedial course. After completing the remedial course, students may request an additional examination. A score of 50 or above on the IELTS and 25 on the TOEFL writing section is required to proceed with the program.

Graduate Program Requirements: Students who have completed the IELTS or the paper-based TOEFL have different course requirements as stated by the OSU Graduate College. To ensure that graduate students are sufficiently skilled at written English, the Test of English Language Proficiency (TEL) is required for all graduate students who took the IELTS or paper-based (PBT) TOEFL test. The TELP must be taken before the student’s first semester enrollment. The International Student Services Office is
Computer Science
K. M. George, PhD—Professor and Head

Computer science is concerned with theoretical and practical methods of storing, processing and communicating information by means of computing devices and computer networks. Professional computer scientists obtain a formal education through the BS, MS or PhD degrees and apply their knowledge to many diversified fields of science, engineering, business and communications. Computer science offers opportunities to both specialists and generalists.

In little more than three human generations, the computing field has evolved from one associated primarily with engineering and scientific calculations of only casual interest to the layperson, to a factor of significant influence in almost every aspect of modern life. Technical careers in computer architecture and software design, as well as applications in the business and scientific areas, require a thorough knowledge of the principles of computer science. In addition, modern society requires some familiarity with computers, not only to be able to understand them, but also to incorporate them into their own decision-making processes.

The department offers the full range of degree programs—BS, MS and PhD. All programs are offered in both Stillwater and Tulsa. Students are admitted to the BS degree on a regular basis. The student must have a high school diploma and a GPA of 2.0; take CS 1113, CS 2133, MATH 2144 and MATH 2153 with no course grade less than “C” and have a GPA for the four courses of 2.5 to remain in the program.

CS majors whose semester GPA is below 2.0 or 2.5 for their major core courses will be placed on academic probation, regardless of overall GPA. Students on CS departmental probation must complete a minimum of 9 hours at Oklahoma State University with a GPA of 2.5 or higher to have their probationary status removed. Students who are not able to have their CS probationary status removed following the completion of a minimum of 9 hours (or the entire semester’s work, if more than 9 hours) will not be allowed to enroll again as an undergraduate major in CS regardless of their overall GPA.

A student who experiences a catastrophic event that plays a significant role in his or her being placed on academic probation has the right to appeal to the Head of the Computer Science Department. With a successful appeal, a student will be given a semester to raise his or her GPA to the minimum level both overall and/or in his or her core courses before any probationary action is taken.

Most BS and MS graduates obtain positions in industry. Approximately half of the PhD graduates take university teaching and research positions and half are employed in industry.

The Computer Science Department has a variety of computing resources, including a Linux cluster, several Linux workstations, an iMac mobile app lab, and robotics and graphics, gaming and media labs. The systems are available to Computer Science students, faculty and staff for both course assignments and research work. Graduate students have access to several research labs and a special projects room in the department. The department also has a student lounge for networking.

Computers can be accessed through the OSU Information Technology Division. There are a number of personal computer labs located in various buildings on campus. Other computing facilities include personal computer labs available. All of these labs have access to personal computer application software and all mainframe computers on campus, as well as Internet access. Both University and department computers can be accessed 24 hours a day.

Graduate Programs
The department offers degree programs leading to the Master of Science degree and to the Doctor of Philosophy degree. These programs are designed to prepare an individual to pursue a career in either an academic or an industrial setting. In addition to taking a prescribed set of core courses, a student must take sufficient courses in one specialized area. In addition to course work, a student must complete a dissertation for a PhD degree. The MS degree program provides a thesis option and a non-thesis option. A student must complete a thesis for MS degree in the thesis option or a report for MS degree in the non-thesis option.

The core course requirement assures the student of breadth of knowledge in computer science; the freedom to choose an area and additional research assures the student of enough depth in some facets of computer science to be able to carry out independent investigations in those areas and put concepts and ideas learned to practical use.

For a master's degree in the thesis option, 30 hours of graduate credit, including a six-credit-hour thesis, are required. For a master's degree in the non-thesis option, 36 hours of graduate credit, including a two-credit-hour report, are required. A master's degree student is required to pass an oral examination over the thesis or the report. If the oral examination of the master's paper is unsuccessful, committee members may ask questions over material covered in both core courses and in all courses listed on the Plan of Study and in all prerequisites for these courses. For the PhD, 60 credit hours beyond a master's degree or 90 hours beyond a bachelor's degree are required; dissertation of 15 to 40 hours (counting toward the maximum) is required. The PhD dissertation must describe original research. PhD students must pass (at an appropriate level) a diagnostic examination, a comprehensive examination, a qualifying examination, and a final oral examination. In general, both academic and industrial positions exist for each PhD graduate.

The candidate's baccalaureate degree need not be in computer science in order to enter the MS program. Students with degrees in other areas may be admitted provisionally and required to take specified prerequisite courses.

Economics and Legal Studies in Business
Lee Adkins, PhD—Professor and Head
See “Economics and Legal Studies in Business” in the “Spears School of Business” section for additional information.

Economics is a science of choice. The study of economics centers on individuals’ attempts to improve their living standards. It provides a comprehensive view of how a society is organized to transform the limited resources available into want-satisfying goods and services. It investigates the processes by which the economy operates and seeks to determine its weaknesses and to prescribe policy measures that will improve its operation. In the process, economics ranges over a host of the most important problems confronting contemporary society—the causes of and remedies for depression and inflation, the determinants of and methods for improving income distribution, poverty problems and welfare measures, the role of the government in economic activity, the requisites for economic growth and development, pollution and congestion and their control.

The primary objectives sought in the undergraduate curriculum are to develop a broad understanding and perception of the economic aspects of people’s activities, coupled with thorough training in the fundamental tools of economic analyses. Toward these ends is the development of elementary mathematical and statistical skills and complementary study in the social and behavioral sciences.

A major in economics prepares students for positions with business firms, non-profit private organizations and government agencies—both national and international. It provides an excellent background for the study of law. An international economic relations option is also offered. A degree option in business economics and quantitative studies is offered through the Spears School of Business to provide additional training in analytical methods and communication skills for both public and private sector occupations. A student interested in pursuing graduate studies in Economics should include a wide range of math courses in their undergraduate curriculum.

Graduate Programs
The department offers programs leading to the Master of Science degree and the Doctor of Philosophy degree. The graduate program in economics prepares economists for academic careers as well as research and administrative positions in business and government agencies.

Graduate fields of specialization include regional and urban economics, international economics, and economic development. In addition, graduate courses are offered in energy, economics, and econometrics.

Admission to a graduate program is determined by an elected graduate studies committee on the basis of the applicant’s previous academic record; verbal, quantitative and analytical scores of the Graduate Record Examination; and letters of recommendation.

The Master of Science Degree. Admission to the master’s program in economics is granted to college graduates with superior academic records. Students must have an undergraduate economics degree, be well grounded in economic theory, and have an excellent mathematical background. A total of 30-33 graduate credits are required to earn an MS in economics.

Each graduate student is guided in the preparation of a plan of study by the graduate program director. At the master’s level there are two options: one provides the student with a well-rounded program that prepares the student for the doctoral program in economics or further graduate study in another related discipline. The second option is applied economics which stresses communication skills, quantitative analysis and course work from other disciplines related to a career objective.

The candidate for the master’s degree is required to show competence in basic economic theory and statistical methods, together with an understanding of the fundamental institutional operations of the United States economy.

A research report or thesis is required of all students who take only the MS
degree. A foreign language is not required. The Doctor of Philosophy Degree. Admission to the doctoral program in economics is granted to college graduates who have superior academic records. A total of 60 graduate credits are required to earn a PhD with a previous earned MS degree. A total of 90 graduate credits are required to earn a PhD without a previously earned MS degree. This program stressers balanced preparation in economic theory and in mathematics and statistics, as well as competence in subject-area fields of specialization. The student is required to pass qualifying examinations in the theory core and in one field of specialization. (The theory core is not considered a field of specialization.) Competence must be demonstrated in a second field of specialization, through course work. The graduate program director helps the student develop a plan of study to achieve these objectives. A foreign language is not required. A dissertation based upon original research is required of the candidate for a PhD degree in economics. The final oral examination is the dissertation defense.

English
Richard Frohock, PhD—Professor and Head

The Department of English prides itself on the diversity of its course offerings and on its small lecture and discussion classes. The department offers a full range of courses in seven areas: literature, creative writing, screen studies, linguistics, teaching English as a second language, rhetoric, and professional writing. The number of students in any English class rarely exceeds 50; and in a writing class, including freshmen-level classes, the enrollment limits range from 15 to 19. The maximum number of students in a graduate-level class is 12. An undergraduate English major has four options: a traditional literature-based English major, creative writing, screen studies, and professional writing. English majors may choose from courses in all historical periods of literature and in all genres—novel, film, short story, poetry, and drama. Each literature course emphasizes literary appreciation and analysis and allows ample opportunity for discussion, independent thinking, and writing. The student in the traditional major may also study fiction writing, poetry writing, and creative non-fiction and take courses in linguistics, which is the study of language, and professional writing, which is writing for organizations. Screen studies courses emphasize criticism, history, and theory of film, television, and new media. It is also possible for an English major to earn a teaching certificate by taking the required education courses as electives. Many English majors pursue careers directly related to their major, such as those in teaching, editing or publishing or they may decide to go to graduate school in order to teach in a college or university. Other students find that an English major is excellent preparation for law school or for careers in the ministry, government, business, counseling, social work, or library science. The Department of English actively participates in the University Honors Program. Students who qualify for Honors are eligible to enroll in restricted courses and to write a Senior Honors Thesis. The department offers Honors courses, all levels of teaching an Honors course on a different topic each year. A Bachelor of Arts in English requires 45 hours of lower- and upper-division English courses. An English minor requires 18 hours of English, at least nine of which must be upper-division. (These hours do not include Freshman Composition.)

Graduate Programs

The Department of English offers programs leading to the Master of Arts, Master of Fine Arts, and the Doctor of Philosophy. Master’s students may choose among four programs: Master of Arts in English; Master of Arts in professional writing; and Master of Arts in teaching English as a second language (TESL); and the Master of Fine Arts in Creative Writing. In consultation with their advisory committees, both master’s and doctoral students have considerable flexibility in designing a degree that meets their own interests and professional goals. Students may take courses in creative writing, screen studies, professional writing, composition and rhetoric, TESL, linguistics, literary theory, and all periods of British and American literature. The diversity of choices and the flexibility of the program prepare students to meet the demands of a changing academic marketplace.

Admission Requirements. Students seeking admission to the graduate program in English must be accepted by the Graduate College and by the departmental graduate committees. In addition to the application and transcripts required by the Graduate College, students must submit to the Department of English a graduate coordinator a statement of purpose; letters of recommendation; and a writing sample or the Graduate Record Examination general and subject area scores. Non-native speakers of English must submit scores from tests of the TOEFL IBT or IELTS. For fall admission the early decision deadline is January 15; the final deadline is March 1. The deadline for spring admission is October 15. Prerequisites are listed under each degree below.

Teaching Opportunities. Depending on their levels of experience and areas of emphasis, graduate assistants may tutor in the Writing Center, serve as discussion leaders for selected large lecture classes, or teach their own sections of freshman composition, composition for international students, technical writing, creative writing, screen studies, or literature. All teaching assistants are required to take an appropriate pedagogy course during their first year of teaching.

The Master of Arts Degree. The MA in English allows students to develop expertise in a variety of areas: literature written in English, creative writing, literary theory and criticism, screen studies, composition and rhetoric, professional writing, linguistics, and TESL. In consultation with their advisory committees, students devise an individualized curriculum that reflects their own intellectual interests and prepares them to enter a doctoral program or to teach at the college level. The degree programs in TESL and professional writing prepare teachers for the bilingual classroom and professional writers for the publishing industry.

Prerequisites. A baccalaureate degree with an English major, or at least 24 hours in English (excluding freshman composition). Successful applicants usually have a minimum grade-point average of 3.00 on a 4.00 scale, particularly in English courses.

The MA in English consists of 30 credit hours, including six hours of thesis. In addition to these hours, students must demonstrate reading knowledge of a foreign language, pass the MA qualifying examination, and pass an oral defense of the thesis. The thesis is a work of original research prepared with the guidance of the student’s advisory committee. Creative writing students may present as their thesis original works in poetry or prose fiction. The programs in professional writing and TESL have separate degree requirements described below.

Professional Writing. The MA option in professional writing consists of 30 credit hours (with thesis) or 33 credit hours (without thesis). In addition to these hours, students must fulfill the foreign language requirement and pass the MA qualifying examination in technical writing. Prerequisites are the same as those above.

TESL. The MA option in teaching English as a second language is designed to provide students with the skills necessary to teach English to non-native speakers in a variety of situations, e.g., teaching English as a foreign language in an overseas school, college, or university; teaching English as a second language to international students studying in intensive English programs in the U.S.; or teaching English to bilingual and bicultural students in American public school systems and adult education programs. Prerequisites are the same as those above except that the major may be either in English or in a field related to second language acquisition or teaching. In addition, applicants to the TESL program must have six hours in a foreign language with a grade of “B” or better, or must complete this requirement prior to taking the qualifying examination. The TESL program consists of 30 credit hours (thesis option) or 34 credit hours (non-thesis option). In addition to these hours, students must pass the MA qualifying examinations in TESL.

TESL is especially relevant to the public school classroom as a result of recent legislation concerning bilingual education. Teachers in English and other areas of expertise will find this program especially useful. The Oklahoma State Board of Education recently approved an “optional certification” for English as a Second Language. Already certified teachers can obtain this certification upon passing the required standardized examination. Several of the courses offered for the TESL option can prepare students for this examination, although the MA TESL option degree does not confer certification.

Certificate in TESOL (Teaching English to Speakers of Other Languages). The Certificate in TESOL (Teaching English to Speakers of Other Languages) is a program designed to provide students with the skills important for teaching English to non-native speakers in a variety of situations, including teaching English to bilingual/bicultural, English Language Learners (ELL), and Limited English Proficient (LEP) students in public school systems and adult education programs, teaching English as a Second Language to international students studying in English programs in the U.S., and teaching English as a Foreign Language in an overseas school, college, or university. The program consists of 12 credit hours, with three required courses and one elective course chosen from a group of courses offered by the Department of English. Admission to the Certificate Program in TESOL requires a Bachelor of Arts or Bachelor of Science degree from an accredited institution of higher learning, a 3.0 GPA, two letters of recommendation, and, for non-native English speakers, appropriate scores on one of the TOEFL IBT or IELTS.

The Master of Fine Arts Degree. The MFA in Creative Writing allows students to focus on developing their abilities as poets and/or fiction writers, through a course of study emphasizing creative writing workshops, literature seminars, and on-the-job experiences in either of those areas or other areas in language and culture. In consultation with their advisory committees, students devise an individualized curriculum that reflects their own artistic and intellectual interests and prepares them to publish their artistic writing, enter a PhD program, or teach at the college level.

The MFA in Creative Writing consists of 42 credit hours, including 12 hours of thesis. In addition to these hours, students must present their creative work at a public reading following the completion of their thesis. Prerequisites include a baccalaureate degree with an English major, or at least 12 hours in English (excluding freshman composition) and writing sample of high quality. Successful applicants usually have a minimum grade-point average of 3.00 on a 4.00 scale, particularly in English courses.
The Doctor of Philosophy Degree. The Department of English grants one doctoral degree, the PhD in English. Students may, however, emphasize in their courses, their exams, and their dissertations a variety of areas: all periods of British and American literature, Native American literature and language, creative writing, literary theory and criticism, screen studies, rhetoric and professional writing, linguistics, and TESL. They may also choose an interdisciplinary emphasis. In consultation with their advisory committees, students devise an individualized curriculum that reflects their own intellectual interests and professional goals.

Prerequisites include a master's degree in English or a field related to the student's area of emphasis. Successful applicants usually have a minimum grade-point average of 3.50 on a 4.00 scale in their master's degrees. All PhD students are admitted provisionally and must take the first-year examination during their second semester of enrollment.

The PhD degree consists of 60 credit hours beyond the master's degree. Fifteen to 20 hours are devoted to the dissertation. In addition to these hours, students must take a first-year examination; demonstrate reading knowledge of two foreign languages or mastery of one language; pass the PhD qualifying examination in two areas; and pass an oral defense of the dissertation. The dissertation is a work of original research prepared under the direction of the dissertation committee. Creative Writing students may present as their dissertations original works in poetry or prose fiction.

Additional information and requirements may be found in the English Graduate Guidelines, which may be consulted online at english.okstate.edu.

Foreign Languages and Literatures

Perry J. Gether, Ph.D.—Regents Professor, Norris Professor and Head

The Department of Foreign Languages and Literatures offers French, German, Russian and Spanish as major fields of study. Minors may be earned in French, German, ancient Greek, Japanese, Latin, Russian and Spanish, or an Area Studies program.

In all languages offered by the department, elementary courses are available for students with no previous experience. Students with previous foreign language experience may take placement tests to find the course best suited for their level of proficiency. A major in a foreign language is often supported by study of another language or work in other fields.

The study of foreign languages is a vital and humanizing part of a general education. In a rapidly changing and shrinking world, it offers new cultural insights, breaks down insularity, fosters discipline of thought and expression, and leads to a better understanding of one's native language. Foreign language majors may expect to find openings in a wide variety of careers in law, medicine, government, the center of excellence, and many areas which require a liberal arts degree. Job opportunities are greatly enhanced for those who combine foreign language study with a major or minor in other disciplines. Moreover, there is a growing demand for foreign language teachers in secondary education. Bachelor of Arts candidates may qualify for teaching licensure without increasing the number of hours required for graduation.

In addition to the standard courses in language, literature and civilization for individual languages, the department offers literature-in-translation courses for general education, and courses in German for reading knowledge and Russian for reading knowledge.

Geography

Dale R. Lightfoot, PhD—Professor and Head

Geography is a diverse discipline concerned with the surface of the earth and its immediate atmosphere. Geographers study the similarities, the differences and interactions among phenomena in this region. Geographers are interested in the economic, social, political and environmental qualities of places, and in how these attributes interact.

Geographers attempt to understand human behavior by answering such questions as: Where do people work? Where do they play? Where do they live? Why do people make these locational choices? What are the consequences of these decisions and what are the causes?

Because the physical environment is important in many explanations of spatial behavior and spatial patterns, geographers have traditionally concerned themselves with relationships between humans and their environment. What impact do people have on the land? What impact does the land have on people? How do people perceive their environment? How does this perception influence their activities?

Finally, geographers examine spatial patterns and behaviors in specific regional contexts. These analyses occur at many levels—world-wide, national and local. These kinds of studies lead to suggestions for change and improvement—the application of geography to contemporary rural, urban and regional problems. Thus many aspects of urban, regional and national planning are geographic in nature.

No academic discipline has broader interests than does geography, and the Department of Geography allows students the flexibility to pursue studies that lead to a wide range of educational goals and careers. Students with interests in environment, planning, real estate, economic development, international affairs, travel, remote sensing, Geographic Information Systems, area studies, management or education are among those who can be accommodated. A geography minor program is also available for those who see geography as complementary to another field of study.

Those who wish to study geography tend to be interested in their own surroundings and in other places. They also possess a curiosity for maps, the basic tool of the field. Students of geography will become familiar with remote sensing, computer graphics, statistics, Geographic Information Systems and cartography—tools which facilitate geographic inquiry and analysis.

Many careers are available to the geography major or minor. Recent graduates have been employed in urban and regional planning, community development, locational analysis in both the public and private sector, resource planning and management, various forms of business and consulting, international and Foreign Service, and teaching. Geography also provides an excellent foundation for a liberal education and is a good basis for a career in business, industry or government.

The department manages the Center for Applications of Remote Sensing, a palynology/paleoecology laboratory, a computer mapping facility, spatial database facility, field mapping equipment such as Global Positioning System receivers, an interactive weather analysis system with satellite data feed, and two ARC GIS equipped geographic information system laboratories. Two international journals are edited and published by faculty members in the department, the Journal of Cultural Geography, and the Journal of Central Asian Studies.

The department specializes in three areas: cultural and historical geography, resource management, and urban/transporation geography. Complementary course work supporting these specialized areas is available in other departments.

The Department of Geography offers the BA and BS degrees. An advanced program leading to the MS and PhD degrees is also available. The department also sponsors students in the interdisciplinary MS and PhD programs in environmental science.

Certificate in Geographic Information Systems (GIS). The certificate in GIS prepares students with broad exposure to principles and applications of GIS. A student who has earned the certificate is well-versed in general GIS theory and has knowledge and/or practical exposure to the following: (1) hardware and software used in GIS, (2) planning and construction of spatial and non-spatial databases, (3) GIS analyses performed on data related to the student's area of interest, and (4) representation of data in both mapped and tabular form. Requirements for the certificate are designed to parallel skills needed by GIS professionals. Through elective courses, students focus on one of several areas of specialization. Admission into the certificate program is open to anyone enrolled as an undergraduate student, graduate student or special student at OSU. To receive a certificate in GIS, a student must complete 21 hours of course work in GIS and related topics and hold a bachelor's or more advanced degree from OSU or an accredited college. Students may work toward the certificate while completing their bachelor's or graduate degree.

Graduate Programs

The Department of Geography offers work leading to the MS and PhD degrees. These degree programs emphasize preparation for employment in positions which are enhanced by an ability to recognize and to interpret spatial distributions, and to analyze regions.

Particular emphasis is placed on the applied aspects of geography, with many graduates employed by private business as well as city, regional, state and national planning agencies. Recipients of graduate degrees in geography have also gone on to a variety of successful careers in various fields, including retail store location analysis, city planning, environmental assessment, and university teaching and research.

The Master of Science Degree. Admission to the master's program in geography is granted to college graduates with superior academic records. An undergraduate geography major is not required. Majors from the social, physical, and behavioral sciences and from the humanities are encouraged to apply. Incoming graduate students must demonstrate competency in cultural geography, physical geography, statistics, and cartography. If a student lacks these prerequisite skills, an additional course in each of these subjects is required.

Two basic plans of study exist for the master's degree. One plan requires a minimum of 30 credit hours, including a thesis; the other is a 36-credit-hour non-thesis option. Plans of study can be developed to accommodate many interests. Major faculty interests include resource management, cultural and historical geography, urban and transportation geography, regional analysis and development, and cultural and political ecology.

The Doctor of Philosophy Degree. Admission to the PhD program is granted to students with superior records in their previous graduate study. A previous degree in geography is not required, but incoming students from other disciplines must demonstrate competency in cultural geography, physical geography, statistics and cartography. If a student lacks these prerequisite skills, an additional course in each of these subjects is required. A minimum of 60 hours of graduate credit beyond the master's degree is required for the PhD degree. These hours include core courses (15 hours), core courses in geography (20 hours minimum), elective courses outside of geography (12 hours minimum), and dissertation hours (15 hours minimum). Each student chooses an individual doctoral committee that advises the student in the formulation
of an approved plan of study for the degree. Students focus their studies in one of three department specialty areas: cultural and historical geography, resource management, and urban/transportation geography. Candidates for the PhD in geography must demonstrate either (1) proficiency in one language other than English, (2) reading knowledge of two languages other than English, (3) proficiency in advanced quantitative methods, (4) proficiency in advanced qualitative methods, or (5) proficiency in a multi-skill track. To be advanced to doctoral candidacy, the student must demonstrate proficiency in three specializations within geography by passing written and oral comprehensive examinations. An important requirement for the PhD degree is the preparation and successful defense of a doctoral dissertation. The dissertation must demonstrate the candidate's ability to plan and complete independent, original research in geography.

Boone Pickens School of Geology
Estella Atekwana, PhD—Regents Professor, Sun Chair of Hydrogeology and Head
Earth is the residence of the human race, therefore it is essential to develop a better understanding of the composition, internal and external processes that affect the Earth. Earth is an outdoor laboratory filled with opportunities to observe geologic processes in action. By applying knowledge of forces that shape Earth, geoscientists seek to reconstruct the past and anticipate the future. Geoscientists provide information to society for solving problems and providing policy for resource management, environmental protection, and public health.

Geology is concerned with the processes, the history, and the characteristics of the rocks and sediments that shape the Earth. Human activities, predominantly on or near the surface, have utilized rocks and rock products, mainly petroleum and metals, to contribute to the quality of life. Because the Earth is dynamic—that is, land surfaces are constantly changing—knowledge of earthquakes, volcanoes, plate tectonics, floods and landslides, to name a few dynamic events, is critical to minimize human suffering and economic loss. Within geology, different specialties, such as petroleum geology, ground-water geology (hydrogeology), mafic and ultramafic igneous (metamorphic) rocks, including those associated with mineralization, and paleontology (study of fossils), have developed.

The Boone Pickens School of Geology offers traditional academic program services, awards BS, MS and PhD degrees in geology and conducts various outreach programs. Geology majors are provided a quality education designed to develop leadership skills and enhance employment opportunities. The faculty of the Boone Pickens School of Geology conduct research in the areas of continental tectonics, conventional and unconventional energy resources, environmental issues, paleoclimatology, geophysics/remote sensing. In these areas, the school has already established a sound infrastructure—appropriate faculty appointments, laboratory and computer upgrades, and a sound record of productivity. Geology undergraduates are eligible for one of at least 10 available departmental scholarships, based on academic achievement and need.

Graduate Programs
Prerequisites. The student should have at least 30 credit hours in geology, including courses in physical geography, historical geography, mineralogy, petrology, sedimentology/stratigraphy, structural geology and field camp. Additional undergraduate requirements to enter the master’s degree program include: two classes in chemistry or geochemistry, two classes in physics, math through calculus II, and one biology course. Deficiencies in course work must be made up by the student during the program. The Graduate Record Examination is recommended, but not required, for admission to the program.

The Master of Science Degree. The MS is awarded through the completion of a thesis. Each candidate must complete at least 30 semester credit hours of work beyond the prerequisites. As many as 12 of these may be taken in approved seminars. Each candidate must complete at least 30 semester credit-hours (course work and research hours) to earn their degree. Such decisions are made by the entire faculty of the School of Geography, upon recommendation of the Graduate Adviser. To be admitted to candidacy, students must pass a written and oral qualifying exam, and successfully defend their dissertation research proposal and pass an associated comprehensive exam. The PhD is conferred after the successful defense of the dissertation.

Gender and Women's Studies
Carol Modér, PhD—Professor and Interim Director
Gender and Women’s Studies is an interdisciplinary program offering a minor for undergraduates, support for curriculum development and research by faculty, and opportunities to collaborate with community and campus partners who are intrigued by how gender shapes the world. Faculty and courses from twelve departments across the university contribute to the program.

The minor is offered through the College of Arts and Sciences, but is open to all undergraduates regardless of major. In addition to two required courses in Gender and Women's Studies (GWST 2113 or 2123; 4113), students choose from courses focusing on gender and women (9 hours), and from courses that complement gender women’s studies (6 hours). Students in Gender and Women’s Studies pursue research in the history of women, in theories of gender and sex, in the humanities, in the social sciences, in the natural sciences, and in the arts. The minor leads to a variety of career opportunities, including nonprofit development, graduate training in humanities and the social sciences, education, curatorial administration, human resources, creative writing and reportage, international relations, publishing, public relations, electoral politics, and advocacy.

History
Laura Belmonte PhD—Professor and Head
History is the record, explanation, and interpretation of the totality of human activities. The study of history is unique in its connection to the role of time in the understanding of human development. History enhances the individual’s knowledge of self and gives perspective and deeper meaning to contemporary events. Courses in the Department of History are intended to give the student a broad understanding of the evolution of civilizations, peoples, countries, and institutions, and an insight into the meaning of this evolution. They are also designed to prepare graduates for many types of employment.

Because history is basic to many special fields, the Department’s instruction is designed to aid students interested in education, law, journalism, scientific and technical professions, and business administration. Students in colleges other than the College of Arts and Sciences who wish to pursue the study of history are encouraged to enroll in courses of interest. The Department of History offers a number of courses that satisfy General Education requirements in the social sciences and humanities. It participates actively in the Honors Program and offers to its majors the option of pursuing a special plan of study leading to a Departmental Honors certificate. The Department of History also participates actively in interdisciplinary minors and the Women's Studies minor.

Graduate Programs
The Department of History offers programs leading to the MA and PhD in history. In addition to the general Graduate College requirements, the candidate for the Master of Arts or Doctor of Philosophy degree with a major in history is expected to have prerequisites of approximately 30 semester credit hours (including 18 upper-division hours) of undergraduate history courses, with an undergraduate grade-point average of at least 3.00.

The Master of Arts Degree. Admission to the master's program requires submission of scores for the verbal, quantitative, and analytical sections of the Graduate Record Examination. Candidates for the Master of Arts degree choose one of two alternative plans. Requirements common to both plans include completion of a course (HIST 5023) in historical methods of research and writing, several graduate seminars, and a two-hour oral examination at the end of the program. Students must maintain at least a 3.00 (“B”) grade-point average. An advisory committee will be appointed for each student during the second semester of enrollment. The two plans are designed for different careers, and the distinctive requirements of each are summarized below:

Plan I. (This plan is recommended for those planning to continue graduate studies at the doctoral level.) Students must complete a minimum of 30 hours of graduate courses in two fields. These hours must include at least 12 hours of seminar offered by the department (including at least one research seminar). Historical Methods (HIST 5023), and six hours of thesis (HIST 5000). Students will take at least 12 hours in the major field and at least nine in a minor field. With the consent of their advisory committee, students may take course(s) at the graduate level in a related discipline.

Fields of study include:
- United States
- Europe
- World

Students must demonstrate satisfactory reading knowledge of one foreign language.

Plan II. (Students must be pursuing Public History.) Students must complete a minimum of 36 hours of graduate courses. These hours must include at least 3 hours of research seminar, 6 additional hours of seminar offered by
the department (reading and/or research), Historical Methods (HIST 5023), Introduction to Public History (HIST 5033), an internship (HIST 5030), and 6 hours of thesis (HIST 5000). Normally, students will also take Museum Studies (HIST 5053) and/or Historic Preservation (HIST 5063). With the approval of the student’s advisory committee, as many as 9 of these hours may be taken in related disciplines.

The Doctor of Philosophy Degree. Admission to the doctoral program requires a satisfactory score on the Graduate Record Examination. Each applicant must also meet Oklahoma State University requirements for the MA degree in history, with preference for applicants having at least a 3.50 grade point average (on a 4.00 scale).

All doctoral students must take Historiography (HIST 6022) and Teaching History at the College Level (HIST 5021). Students without a MA thesis may be required to take Historical Methods (HIST 5023). All doctoral students must take at least twelve hours of seminar including at least three hours of research seminar. Course work to be completed will be indicated on a Plan of Study. In general, a minimum of sixty semester graduate credit hours beyond the MA degree is required, with a “B” average for all courses. Students with a general field in United States history should take reading seminars in United States history dealing with at least two of the following chronological areas: Early America, Nineteenth Century U.S., and Modern U.S.

The prospective doctoral student must prepare three fields for examination: a general field (at least twelve hours), a major field (at least twelve hours), and a minor field (at least nine hours). The minor field should be outside the geographic boundaries of the general field. With the consent of their advisory committee, students may apply graduate course work taken outside the History Department to their major field. Other major fields are possible with permission of the student’s advisory committee.

United States
Pre-modern Europe to 1789
Modern Europe
Major fields (including but not limited to):
United States West
Native North America
Science and Technology
Religion
Culture
Gender
Politics
Modern U.S.
Race and Ethnicity
Environment
Diplomatic
Transnational
Minor fields.
Europe
United States
World (Ancient, Middle East, Asia, or Latin America)
Public History

Upon the recommendation of the departmental Director of Graduate Studies, a doctoral advisory committee is appointed by the Dean of the Graduate College. This committee consists of members of the graduate faculty (at least one from each of the examination fields), including the student’s major advisor, who acts as a chairperson and must have status as a graduate faculty member with doctoral chairing privileges. An additional member of the committee must be a graduate faculty member who advises the student in the formulation of an approved plan of study for the degree. Each student must have a grade of “A” or “B” in 18 hours of core course work.

Upon admission to candidacy until he or she has (1) demonstrated a reading knowledge in at least one foreign language; (2) completed all course work on the plan of study; (3) completed with a grade of “B” or higher graduate courses in historical methods, historiography, and teaching history at the college level; (4) obtained approval of a proposed dissertation topic; and (5) passed comprehensive written and oral examinations in each of the areas of concentration. Upon admission to candidacy, the student begins work on the dissertation. Supervised by the major advisor and members of the advisory committee, the dissertation provides the student an opportunity to do original research on a topic within the major area of study. The final dissertation must be submitted to the Graduate College in accordance with the regulations contained in the “Graduate College” section of the Catalog. Upon completion of the dissertation, the student undergoes a final examination. Oral in nature and no more than two hours in length, the examination is primarily a defense of the dissertation.

Liberal Studies
Thomas A. Wilde, Ph.D—Director

Liberal Studies degrees meet the needs of students who desire greater breadth in the major than typical degrees allow. By combining course work across several Arts and Sciences social sciences and humanities disciplines, students tailor their curriculum to unique academic and career goals.

The major requires 45 hours distributed across at least three Arts and Sciences disciplines. To ensure coherence among courses selected across disciplines, a three semester hour senior project is required as a part of the major. The senior project is examined and approved by a panel of two faculty members who represent the disciplines in which the candidate concentrates course work.

Mathematics
William H. Jaco, PhD—Regents Professor, Grayce B. Kerr Chair, and Head

Contemporary mathematics is concerned with investigations into far-reaching extensions of such basic concepts as space and number. Well-prepared students with a basic knowledge of calculus, linear algebra, and modern algebra will be prepared to participate in the formulation and analysis of mathematical models arising from varied fields of application. Mathematics has always had close relationships to the physical sciences and engineering. As the biological, social and management sciences have become increasingly quantitative, the mathematical sciences have moved in new directions to develop interrelationships with these subjects.

Mathematicians teach in high schools and colleges, do research and teach at universities, apply mathematics in business, industry and government. Outside of education, mathematicians usually work in research, although they have become increasingly involved in management. Firms employing large numbers of mathematicians are in the aerospace, communications, computer, defense, electronics, energy, finance, and insurance industries. In such employment, a mathematician typically serves either in a consulting capacity, giving advice on specialized mathematical problems to engineers and scientists, or as a member of a research team composed of specialists in several fields. Among the qualities that he or she should possess are breadth of interests and outlook, the ability to think abstractly and a keen interest in problem solving.

An undergraduate specializing in mathematics will begin with calculus or sometimes with college algebra and trigonometry. Well-prepared students are encouraged to establish credit in elementary courses by passing advanced standing examinations. All majors take courses in differential equations, and linear and abstract algebra and analysis. The student’s interest and future plans determine the remainder of the field of concentration. Students are encouraged to acquire proficiency in computer programming and to take substantial work in related fields in which they have a special interest.

Undergraduate degree tracks are available to prepare students for: (1) employment in industry, business or government; (2) secondary school mathematics teaching, and, (3) graduate study in mathematics. Students choosing secondary school teaching complete all requirements for state licensure as part of this program.

Many of the more challenging positions in mathematics require study beyond a bachelor’s degree. For example, university teaching requires a PhD, while teaching in a junior college requires at least a master’s degree and possibly a doctorate. Approximately 25 percent of the students receiving a bachelor’s degree in mathematics go on to graduate work.

Graduate Programs

The Department of Mathematics offers programs leading to the Master of Science and Doctor of Philosophy degrees.

Prerequisites. A student beginning graduate study in mathematics is expected to have had at least one year of advanced calculus, at least 18 semester hours in mathematics beyond elementary integral calculus including courses in differential equations, linear algebra, modern algebra and modern analysis. An applicant whose preparation is deficient may be admitted to the program, if otherwise qualified, but will be required to correct the deficiency, increasing somewhat the time required to complete work for the degree. Prospective graduate students are advised to take at least introductory courses in related fields such as physics, statistics, and computer science.

The Master of Science Degree. The department offers three tracks in the Master of Science degree, computational and applied mathematics education, mathematics education, and pure mathematics. Each degree requires 32 credit hours of graduate course work in mathematics or related subjects. Two of these hours are waived if a master’s thesis is written. Each student must have a grade of “A” or “B” in 18 hours of core course work.

The Doctor of Philosophy Degree. The department offers three tracks for the PhD degree: applied mathematics, mathematics education and pure mathematics. Admission to the PhD program is granted only to students with superior records in their previous graduate or undergraduate study. A minimum of 90 semester credit hours of graduate credit beyond the bachelor’s degree is required for the PhD degree. This may include a maximum of 24 hours credit for the thesis. Each student has an individual doctoral committee that advises the student in the formulation of an approved plan of study for the degree. Each student must pass three comprehensive exams from a selection of core topic areas, or pass two such exams and complete a minor thesis.

The most important requirement for the PhD degree is the preparation of an acceptable dissertation. This dissertation must demonstrate the candidate’s ability to do independent, original work in mathematics, or mathematics education.

School of Media and Strategic Communications
Derina Holtzhausen, PhD—Professor and Director

At Oklahoma State University, the professional areas of mass communication are grouped in the School of Media and Strategic Communications (SMSC).
These areas seek to complement each other with a minimum of duplication. Degrees offered include a bachelor of arts and sciences in Multimedia Journalism, Sports Media and Strategic Communication.

A modern democratic society cannot live by its ideals if its mass media practitioners are merely competent technicians who worry less about what is reported in the press and how it is reported. Citizen must have accurate information about social, political and economic problems as well as knowledge of actions taken by government agencies and organizations at all levels. From village council to Supreme Court, there can be no exception from the rule that public business is the people's business.

To speak to people through different media, whether as a journalist or a strategic communication practitioner, requires knowledge of the people to whom or on whose behalf one wishes to speak and an understanding of the world in which they live. Therefore, the curricula of the School of Media and Strategic Communications are designed to offer more than training in communication techniques. Three-quarters of the SMSC student's time at the University is devoted to a liberal education in the arts and sciences. At the same time, the student gains competence in a professional field through courses in the SMSC. On graduation, undergraduate students in the School of Media and Strategic Communications will be able to:

1. Demonstrate an understanding of the relevant constitutional freedoms, legal issues and ethical principles in mass communications.
2. Demonstrate an understanding of the relevance of human diversity in mass communications.
3. Demonstrate an understanding of the history and social role of mass communications.
4. Demonstrate critical, creative and individual thinking.
5. Demonstrate an understanding of the relevant theories and concepts of mass communications.
6. Demonstrate an understanding of the methods and techniques of research and information gathering.
7. Demonstrate appropriate writing, editing and production techniques in mass communications.
8. Demonstrate an understanding of relevant planning and management methods in mass communications.

Accreditation. The undergraduate programs of study in the School of Media and Strategic Communications are accredited by the Accrediting Council on Education in Journalism and Mass Communication.

Admission to the Undergraduate Program. Admission into the School requires completion of 28 hours with a minimum graduation retention GPA of 2.50. Enrollment in all upper-division SMSC courses except MC 3173 and MC 4253 requires admission into the School, a passing score on the SMSC language proficiency exam, and a minimum grade of "C" in MC 2003 and MC 2023. The ability to type a minimum of 30 words per minute and either a computer course or computer literacy is also required for enrollment in all writing courses beginning with MC 2003.

Requirements for Graduation. The degree programs of study offered in the School of Media and Strategic Communications are built around strong writing, liberal arts and practical components. Of the 127 hours required to earn a degree in SMSC, students must complete up to 45 semester hours in media and strategic communications courses.

Students must have a minimum 2.5 GPA in all SMSC courses and major requirements with a minimum grade of "C" in each course. No more than 12 hours in SMSC courses may be transferred from other institutions.

All three degree options in SMSC are also required to develop and maintain a portfolio exhibiting their best and most appropriate work as well as assignments required for the portfolio. Portfolios will be turned in during senior capstone courses as part of their graduation requirements. School faculty, staff and industry professionals will evaluate these portfolios periodically and offer guidance and constructive criticism. It is anticipated that the portfolios will be helpful in showcasing students' performance when they apply for internships or jobs.

Multimedia Journalism. The many changes in the media environment require that students develop keen expertise in journalism and storytelling in all media formats. The degree in multimedia journalism will allow graduates to work with any media platform, be it print, television, radio, or the internet. While students will develop their skills across all media platforms they will be able to specialize in one of two areas: multimedia journalism, news or multimedia production.

Students learn the basics of journalism writing and reporting for print, online, audio and video production on state-of-the-art equipment and are challenged to put those skills to use by participating in the daily operations of the campus newspaper, The Daily Collegian and its online version ocolly.com, the radio stations KSOSU and KXZY and various video productions. Students cover creating content for OSState.tv and the OSU online TV station. Students gain on-the-job multimedia experience through internships and some hold part-time jobs as campus correspondents for various publications or work for media in the Stillwater area. Internships at broadcast and cable outlets in the region also provide students with on-the-job experience and a valuable opportunity to work with seasoned media professionals. Many juniors and seniors find this work a source of revenue to assist them in the cost of their education.

The multimedia program is affiliated with the Oklahoma Press Association, Southwest Journalism Congress, the Society of Professional Journalists, the National Association of Black Journalists, the National Association of FM Broadcasters, Radio Advertising Bureau, Oklahoma Association of Broadcasters, Oklahoma Broadcast Education Association, National Association of Broadcasters, Broadcasters Association and National Public Radio.

Sports Media. This program, one of very few undergraduate degrees in sports media in the United States, offers students the option of concentrating in sports multimedia journalism, sports multimedia production, or sports strategic communications.

Students pursuing an undergraduate degree in sports media from OSU receive classic hands-on training in all aspects of the industry. Depending on the area of concentration, course work may include sports writing, play-by-play announcing, field production, and media relations.

Oklahoma State University and the School of Media and Strategic Communications enjoy a special relationship with sports media throughout the country. As a major sports venue, the OSU campus is visited regularly by national and regional sports media - both print and broadcast - to cover major sporting events. These media organizations routinely utilize SMSC student workers. The 2004 debut of ESPNU was telecast from Stillwater because the campus represents classic collegiate sports, and because the network producers were able to rely on a supply of ready and trained media and strategic communications students.

The sports media faculty has strong professional backgrounds in the field and offers students the solid foundation in both theory and practice that prepare them for a variety of career paths.

Strategic Communication. Employers increasingly require communication professionals to first have an understanding of the relevant audiences with whom they wish to communicate or on whose behalf they need to communicate and then choose the best communication methods, be it through the techniques currently taught in public relations or advertising or both. This requires students to have a thorough understanding of the political, social and economic systems of society. Additionally, the new media environment now requires that professionals have skills they can apply to every media platform, be it print, television, radio, or the internet. Although all students in strategic communication are required to have experience in and an understanding of all strategic communication methods, they do have a choice to specialize in either public relations or advertising.

The degree in strategic communication prepares students to be professional communicators in any environment, such as counseling firms, advertising agencies, corporations, non-profit organizations, or even their own businesses. It still prepares students to write and communicate well because good writing skills remain the foundation of professional communication. It also grounds students in a thorough knowledge of gathering and analyzing data relevant to their practice and in communication management principles with an emphasis on strategic thinking. The ultimate aim of this degree is to prepare students to be the future leaders in their field. Students complete their degree with a capstone campaign course, where students integrate and apply the knowledge they gained in their undergraduate work to a single strategic communication campaign.

Students may participate in Innovative State, an Oklahoma State University student-run Media and Strategic Communications firm. Its members are high achieving students of the School of Media and Strategic Communications. The members of the firm use their talents not only to gain work experience and build their portfolios, but also to provide services to non-profit organizations on campus and in the community. Innovative State continues to grow, take on new clients and provide opportunities for OSU students to use and develop their professional skills.

The Strategic Communication program is affiliated with the American Advertising Federation, the American Academy of Advertising, the Society of National Association Publications, the International Association of Business Communicators, the Public Relations Society of America and the Association of Women in Communication.

For more information, please go to media.okstate.edu.

Graduate Programs. The School of Media and Strategic Communications offers courses leading to the degree of Master of Science in mass communications. Preferred qualifications for admission to the master's program include a bachelor's degree in an area of mass communications with an overall grade point average of 3.0. The Graduate Record Exam (GRE) is required. Graduates of a non-mass communication discipline may enter the Master of Science program, with the stipulation that they complete, without graduate credit, foundation courses required to pursue their career interests during the first year of their graduate education.

Basic emphasis is on media management, strategic communication management, application of current communication theories and research methods and designs to the professional aspects of mass communication. Electives in the behavioral sciences are encouraged.
Microbiology and Molecular Genetics

D. Kim Burnham, PhD—Associate Professor and Interim Head

Microbiology/Cell and Molecular Biology. Microbiology is the study of bacteria, viruses, fungi and algae and their many relationships to humans, animals, plants and the environment. Cell and molecular biology is the study of how cellular components interact to promote life processes within prokaryotes and eukaryotes. Microbiologists apply their knowledge to public health and sanitation; food production and preservation, industrial fermentations which produce chemicals, drugs, antibiotics, alcoholic beverages and various food products; prevention and cure of diseases in plants, animals and humans; and degradation of toxic chemicals and other materials present in the environment; insect pathology; and other activities which seek to control microbes, to enhance their useful activities and prevent the growth of those which are harmful. Microbiology is the basis for the exciting and expanding field of biotechnology which endeavors to utilize living organisms to solve important problems in medicine, agriculture, and environmental science.

Microbes live in a great variety of environments and carry out many of the processes found in higher organisms. They are thus interesting in their own right as model systems for the study of reactions which occur in higher organisms. As subjects for research in biochemical and molecular genetics, microbes have contributed most to the current knowledge of genetics at the molecular level (microbial systems are in the forefront of genetic engineering).

Departmental courses are designed to provide comprehensive training and the skills required for working with microorganisms, as well as a broad understanding of the role of microbes in our daily lives. Many of these courses are required for the MS and PhD degrees in various areas of concentration, including virology, microbial physiology, microbial genetics, microbial anatomy, microbial pathogenesis, immunology, cell biology and several applied areas.

Opportunities for employment exist at all scholarly levels, in many local, state and national government agencies and in varied industries. The record for employment of microbiologists has been excellent for many years and with the increased interest in biotechnology, employment opportunities look even brighter for the future.

The fields require a solid knowledge of other sciences and students should take high school courses in mathematics, biology, physics and chemistry. Students should have broad interests in how living cells work and have aptitudes for biology and chemistry.

Molecular Genetics Option. This option includes the study of DNA and RNA synthesis and how genes are expressed to allow differentiation of a single-celled egg into a complex multicellular organism. Molecular biologists study DNA synthesis, cell ultrastructure, organelle structure and function, enzymology, and the collection of concepts and procedures commonly known as "biotechnology" or "genetic engineering."

With the advent of modern molecular biology, studies of the fundamental processes of living organisms have taken dramatic strides. This option at Oklahoma State University has been designed to allow students to acquire training in a multidisciplinary atmosphere that prepares them for employment in the rapidly growing fields of bioinformatics, molecular genetics, microbiology, and several other areas. Students choosing this avenue of study will be well prepared to continue toward the MS or PhD degrees at this or other institutions or to find employment directly upon graduation.

Microbial Ecology/Environmental Option. Microorganisms play an astonishingly important role in the evolution, ecology, and biogeochemical processes of our planet and in its inhabitants. This option deals with the role of microorganisms in the environment, their diversity and interactions with each other and with the environment in which they live. The application of the latest molecular tools in retrieving genomic information directly from the environment has provided access to the vast microbial world of uncultivable organisms and in exploring their identity, in-situ activity, genetic diversity, and their importance to human health and the environment. The development of innovative cultivation strategies has helped isolate elusive microbes from some of the most unusual and extreme environments, and thus providing glimpses into their novel genes and metabolic potential that can be exploited for the development of biotechnology. The Microbiological Ecology - Environmental Microbiology is truly an interdisciplinary science. To explore the inner workings of microbes and the processes they catalyze in complex ecosystem, a multidisciplinary integrative approaches involving disparate disciplines such as microbiology, geology, molecular biology, and computation biology are required.

Microbial Pathogenesis Option. The aim of the Microbial Pathogenesis option is to train students seeking to pursue graduate study in this field or a career in medical related fields. A third of all preventable deaths on this planet are due to infectious diseases. Over a period of several decades, there has been a significant decline in infectious diseases due to the considerable impact of modern medical research. However, there is an upsurge of infectious threats to human beings in the recent years. This has been due to a number of reasons, including the emergence of new and antibiotic resistant infectious agents and a scarcity of effective vaccines.

This option focuses on the study of the various groups of infectious agents, the mechanisms employed by these agents to subvert the host immune system and cause tissue damage, and their interactions with host cells. A comprehensive understanding of the complex mechanisms of microbial pathogenesis requires study of molecular biology of the pathogens, eukaryotic cell biology and the host immune system. Our BS degree program in Microbiology with the Microbial Pathogenesis option is designed to expose the students to this exciting area of science so that they are well equipped to pursue their chosen careers.

Clinical Laboratory Science Option. This option is designed to give the student the broad general education and the highly technical skills that are required for a successful career in this important medical science. The minimum requirement for the BS degree in clinical laboratory science (CLLS) is three years of university work that includes general chemistry, organic chemistry, biochemistry, immunology, molecular genetics, anatomy & physiology, upper division courses in microbiology, calculus, and one year of clinical laboratory education (internship) in an approved school of clinical laboratory science.

For the BS degree and certification, the students will, after three years of university work, complete one year of clinical internship in a school of clinical laboratory science accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS) and currently affiliated with Oklahoma State University. Schools of clinical laboratory science/medical technology are located at the following hospitals: Comanche County Memorial Hospital, Lawton, OK; St. Francis Hospital, Tulsa, OK; and Baptist Medical Center, Oklahoma City. Clinical Laboratory Science is unique in that students are able to enter a health profession directly after obtaining a BS degree. Clinical laboratory scientists comprise the third largest segment of the healthcare professions and are an important member of the healthcare team, working with doctors and nurses. The Oklahoma State University College of Medicine and Allied Health allows the students to prepare for employment opportunities in healthcare laboratories, administration, health law, medicine, dentistry, veterinary medicine and more.

Biomedical Science Option. Students electing this option plan to complete at least 90 hours of course work toward a microbiology/cell & molecular biology major, including professional program prerequisites, and apply to their professional program (chiropractic, dental, medical, optometry, pharmacy, podiatry, veterinary) beginning in their sophomore year. Students accepted into one of these professional programs in their junior year can transfer credits from their applied science courses to their professional program. Students may count toward a Bachelor of Science degree in microbiology/cell & molecular biology.

Graduate Programs

Programs of course work and research leading to the degrees of Master of Science and Doctor of Philosophy are offered by the department in either microbiology or cell and molecular biology.

Prerequisites. Applicants for admission must have received the baccalaureate degree from an accredited university or college and must have completed a minimum of 30 semester credit hours in the biological and physical sciences. The Aptitude Test portion of the Graduate Record Examination is required of all applicants. An applicant will not be accepted at the MS level unless at least one member of the departmental graduate faculty agrees to act as the applicant's advisor. A majority of the departmental graduate faculty must approve applicants at the PhD level.

The Master of Science Degree. In addition to the general requirements for the degree, the following departmental requirements apply. For the BS degree and certification, the students will, after three years of study, have completed 30 credit hours with this thesis. The plan of study must include six credit hours in MIRC 5000 and one credit hour in MIRC 5160. An accelerated MS degree is available that is largely coursework and literature based, which allows completion of the degree in as little as 12 months. Literature research includes at least six credit hours in MIRC 5990.

Candidates for the MS degree are expected to attend and participate in all departmental seminars. A final oral examination covering the thesis (or literature research for the accelerated program) is administered by the advisory committee following a public presentation of the candidate's research.

The Doctor of Philosophy Degree. The study plan of a student entering the program with a bachelor's degree must include 30 credit hours in courses other than MIRC 5000 and MIRC 6000. Those entering with a master's degree must include 15 hours in courses other than MIRC 6000 which were not included in their previous study plan. Three years are required for the PhD degree.

Candidates for the PhD are expected to attend and participate in all departmental seminars. Candidates for the PhD degree must pass both a written and an oral qualifying examination. The final examination covering the dissertation research is given promptly after the candidate has given a public seminar on his/her research work.

Departments of Military Studies

Brett S. Banilowicz, PhD—Coordinator

In agreement with the U.S. Air Force and the U.S. Army, OSU recognizes separate departments of Aerospace Studies and of Military Science as integral academic and administrative departments of the University. These
two departments are administered within the framework of the College of Arts and Sciences. The two departments provide instruction under the basic and advanced Reserve Officers’ Training Corps (ROTC) programs.

Scholarships. The Army and Air Force ROTC programs offer a wide variety of four, three, and two year merit based scholarship opportunities to qualified students interested in pursing a commission in the Army or Air Force. ROTC scholarships provide payment for tuition, books, and monthly subsistence allowance for the duration of the scholarship period. An additional university based incentive scholarship of $1,000.00 per semester is allocated to 10 ROTC scholarships annually. Four-year National ROTC scholarships are offered annually to high school seniors, who will be entering college in the fall semester. Scholarship applications may be obtained through local high schools, online, or by contacting the University’s ROTC department. In addition, the Army ROTC Program offers four and three year Guaranteed Reserve Force Duty Scholarships to those interested in pursuing a commission as an officer in the Army National Guard or United States Army Reserve.

Flexibility. ROTC at OSU offers a variety of programs, giving the student considerable flexibility in charting a path to commissioning in the Army or the Air Force. Students desiring to see what the program is like may enroll in up to 14 hours of ROTC courses dealing in a wide range of subjects from leadership to tactics, taught by participating in basic familiarization courses. Those interested in learning more about ROTC at OSU, or in enrolling, are encouraged to contact the professor of aerospace studies or professor of military science in Thatcher Hall on campus.

Aerospace Studies
Lt. Col. Steven R. Cherrington—Professor of Aerospace Studies and Head
The basic four-year Air Force ROTC program consists of a classroom hour and one leadership laboratory period per week during the freshman and sophomore years. Additionally, at least two hours a week of physical conditioning is required. Basic courses give students a thorough background in United States Air Force (USAF) structure and history, as well as drill and ceremony, military customs and courtesies and wear of the uniform. Non-scholarship cadets enrolling in the freshman- and sophomore-level courses incur no military obligation. During the spring of the sophomore year, students compete for selection into the Professional Officer Course (POC); those selected will attend a four week field training encampment during the summer between the sophomore and junior years. For students getting a late start into the Air Force ROTC program, depending on academic major, there are three-year programs that can lead to POC entrance and eventual commissioning.

Following completion of field training, students spend four semesters as POC cadets; cadet courses consist of three classroom hours and one leadership laboratory per week, for three hours of credit per semester. Class work and laboratory involvement are designed to prepare the student for his or her future role as a leader in the USAF. In addition, students are given the opportunity to gain practical leadership experience by holding various positions of responsibility in the Cadet Wing. POC cadets not on two-, three- or four-year scholarships will receive $450.00-$500.00 per month subsistence allowance if they maintain retention standards.

All students have the opportunity to participate in various cadet wing-sponsored extracurricular activities during the year. These include visits to active Air Force installations to gain first-hand knowledge of the duties of junior Air Force officers; cadets are often taken on incentive flights in USAF aircraft.

Students who successfully complete the POC program are commissioned as second lieutenants in the United States Air Force, with a four-year obligation. Those who are selected for pilot or navigator training incur a ten-or six-year obligation. During the spring of the sophomore year, students are given the opportunity to attend a four week field training encampment during the summer between the sophomore and junior years. For students getting a late start into the Air Force ROTC program, depending on academic major, there are three-year programs that can lead to POC entrance and eventual commissioning.

Following completion of field training, students spend four semesters as POC cadets; cadet courses consist of three classroom hours and one leadership laboratory per week, for three hours of credit per semester. Class work and laboratory involvement are designed to prepare the student for his or her future role as a leader in the USAF. In addition, students are given the opportunity to gain practical leadership experience by holding various positions of responsibility in the Cadet Wing. POC cadets not on two-, three- or four-year scholarships will receive $450.00-$500.00 per month subsistence allowance if they maintain retention standards.

All students have the opportunity to participate in various cadet wing-sponsored extracurricular activities during the year. These include visits to active Air Force installations to gain first-hand knowledge of the duties of junior Air Force officers; cadets are often taken on incentive flights in USAF aircraft.

Students who successfully complete the POC program are commissioned as second lieutenants in the United States Air Force, with a four-year obligation. Those who are selected for pilot or navigator training incur a ten-or six-year obligation, respectively.

Military Science
Lt. Col. Kevin T. Nicholas—Professor of Military Science and Head
Students desiring to expand the scope of their education, while preparing for a dynamic and rewarding career as an officer in the United States Army, active duty, National Guard, or Army Reserve, choose the Army Reserve Officer Training Corps program (ROTC) as an adjunct to their chosen field of study. With considerable flexibility in charting a path to commissioning in the Army or the Air Force, students may complete up to 12 hours of academic work taken during the junior and senior year. In addition, participation in a five-week summer camp is mandatory. The advanced course emphasizes further development of leadership skills, offensive and defensive tactics, physical conditioning, ethics, military law, professional and basic military knowledge and skills. Additionally, advanced course students are responsible for use of required military skills as they act as assistant instructors during laboratory periods, plan leadership laboratories, plan and conduct field training exercises, and are responsible for coordinating and supervising departmental extracurricular activities. In addition there are several students who join Army ROTC in the simultaneous Membership Program in which they are both students in the ROTC and members of the Army Reserve or United States National Guard. This provides tremendous experience and economic benefit.

All advanced course students must satisfy directed professional military education (PME) requirements prior to receiving a commission. The PME consists of two essential parts—a baccalaureate degree and completion of commissioning requirements to include an upper division military history course. Students interested in the Department of Military Science are encouraged to visit with departmental faculty members at any time for further information concerning departmental course offerings and class sequence. A number of two-and three-year scholarships are available through the department. Prior enrollment in military science is not a prerequisite for departmental scholarship application.

Music
Brant Adams, PhD—Professor and Head
The music program at OSU serves students who plan careers in the field of music as well as those who desire to participate in any element of a comprehensive music program. Professional instruction prepares students for careers in performance, teaching, or the music industry. The OSU undergraduate degrees are also excellent preparation for graduate school and for church positions.

The student planning to major in music at the university level should consider his or her background carefully. It should include a strong interest in music during high school years and a talent for performance in vocal or instrumental music. Individual lessons, fundamental theory knowledge, and basic piano ability will also be helpful.

The music major may choose from the following degrees: (1) Bachelor of Music (BM) in performance, (2) BM in instrumental/vocal music education, (3) BM with exercises in business, and (4) Bachelor of Arts (BA) in music. In addition the Bachelor of Music degree is an active major in music with another outside field.

The student majoring in a discipline other than music may participate with music majors in all ensembles (choirs, opera, orchestra, wind ensemble, marching band, concert band, jazz bands, and chamber groups) and courses, as well as individual lessons for academic credit.

An active scholarship program provides assistance to music majors as well as non-majors. Students are invited to write, call 405.744.6133, or check our website (music.okstate.edu) for audition information.

Faculty members, students and ensembles present over 100 concerts and recitals annually. The department also supports an active program of extension and outreach opportunities.

The Department of Music is accredited by the National Association of Schools of Music (NASM), and is an All-Steinway School.

Admission Requirements. Students wishing to major in music should contact the Department of Music to arrange for an entrance audition and interview.

Students are expected to maintain a cumulative GPA of at least 2.0 while enrolled as music majors at OSU. Any student whose GPA falls below 2.0 will be placed on departmental probation. Students be removed from departmental probation, students must increase the cumulative GPA to at least 2.0. Any student who fails to meet the minimum GPA requirement in two consecutive semesters will be suspended from the OSU music program. For the purpose of determining probationary status, the number of semester credits that apply towards the GPA cannot exceed the total number of ensemble credits required for completion of the degree. Though a student must maintain a GPA of at least 2.0 in order to avoid departmental probation from semester to semester, all music students must have a minimum cumulative GPA of at least 2.5 in the music major in order to graduate.

In addition to maintaining a 2.0 cumulative GPA, students must earn grades no lower than a C in any music class. Students who fail to pass a required music course with a grade of at least a C after two attempts will be suspended from the music major.

Applied Juries. Students are expected to pass a performance jury at the conclusion of each semester of applied study. Any students who fail to pass this jury will be placed on departmental probation. Students must also pass an upper division barrier jury prior to enrolling in upper division applied lessons. Any students who fail to pass this jury will be placed on departmental probation. Those students must retake this performance barrier jury at the conclusion of the following semester. Any students who fail a performance barrier jury for two consecutive semesters will be suspended from the music program.
Any student suspended from the music program may re-audition for acceptance into the program, but must wait at least one year before continuing as a music major. Students who are initially suspended from the music program but are later accepted after the re-audition process will remain on probationary status for one semester. Any re-admitted student who does not meet all of the necessary minimum requirements at the conclusion of their first semester of re-admittance will be suspended from the program.

Further details of the departmental academic progress policy are published in the Undergraduate Music Student Handbook at music.okstate.edu.

Graduate Programs

The Master of Music offers the performer and conductor the opportunity to further their professional studies and/or prepare for study at the doctoral level. For the student pursuing the conducting track, we stress challenging studies in conducting skills, repertoire, and rehearsal techniques. The degree candidate will focus on his/her particular area of specialty or composition. Students will have numerous opportunities to conduct appropriate choirs, wind bands, orchestras and string groups, and chamber ensembles.

As a part of specializing on his/her instrument, the student who chooses the applied music track will develop a refined knowledge of the literature composed for that instrument and will also learn the teaching and technical approaches that have been developed for that musical medium. Performing opportunities, both solo and collaborative, are an important component of the degree candidate's studies.

The Master of Music in Pedagogy and Performance is a 32 hour degree. Each track includes a course in music research and bibliography, music theory, and music history. Elective credits that are built into each degree track permit the student to explore additional interests. Each degree candidate will complete a final project which contains both written and performing components. A final oral examination is also part of the degree requirements.

Admission Requirements. To participate in the pedagogy and performance program, a student must first make application to the Graduate College. Prospective students must have earned a Bachelor of Music from an NASM accredited institution, or the equivalent. Students interested in the conducting track must audition on campus, or submit a video-tape of their conducting, and fill out the department of music application for admission. Students interested in the applied music track must audition on campus, or submit an audiotape of a recent performance (minimum of 20 minutes of music), and fill out the Department of Music Application for Admission.

Financial Assistance. The Department of Music offers a variety of assistantships with areas of specialization including music appreciation, class piano, instrumental techniques, accompanying, and music technology. Additional scholarships may be awarded through the Department of Music.

Philosophy

Scott D. Gelfand, PhD—Associate Professor and Head

Philosophy is an intellectual activity to be practiced and a subject matter to be studied. As an activity, philosophy seeks to analyze, evaluate, and often reformulate the ideas, principles and arguments by which experience is understood and explained and by which action is directed and justified. Every student’s experience in life—esthetic, political, religious, scientific or moral—is considered by philosophy. The writings produced by great philosophers are worthy of study as models of thought and as artifacts of historical influence and cultural significance. In this latter role philosophy is related to the development of the individual.

Courses offered in philosophy fall into three general groups: broad introductory courses that cover a variety of topics, historical courses that proceed chronologically through a sequence of thinkers, and special topic or field courses. Some offerings combine the latter two characteristics. Few undergraduate courses are intended primarily for majors. The BA program in philosophy has been approved for offering at OSU-Tulsa.

Students may pursue work in philosophy as part of their general education, as a support to their major area of concentration, as a minor, as a major leading to a BA degree, as a second major or in connection with a graduate program. The program in the major accommodates students of three sorts. The "general" track is designed for students who wish to explore philosophy as a general path to the refinement of their thinking, writing and speaking, and a deepening appreciation of the most fundamental and guiding ideas and values of civilization. It is a very flexible program, requiring two lower-division introductory courses, two upper-division history survey courses and three of additional unspecified philosophy courses numbered 3000 or above.

The "pre-professional" track is designed for students who wish to ground their professional interests (such as law, medicine, business, public service, the ministry), on a philosophic basis. Though requirements are technically the same for these students as ones on a general track, they are assigned a second adviser who helps to coordinate curricular and other activities for the best career preparation possible. The "graduate preparation" track is designed for students who are interested in pursuing graduate studies in philosophy. It requires an additional six hours of upper-division philosophy and mandates more specific courses than either of the other tracks. Students may shift from track to track at any time in their matriculation without prejudice.

A minor or a second major in philosophy will complement any other area of study. A philosophy minor requires 18 hours of unspecified philosophy courses, 12 of which must be numbered 3000 or above.

Graduate Programs

The Department of Philosophy offers a Master of Arts degree in philosophy. Consult the "Master's Degree Programs" section of the "Graduate College" in the Catalog for general regulations and requirements relating to admission.

The Master of Arts degree in philosophy offers a broad-based curriculum designed to serve the interests of two kinds of students:

1. Professional Emphasis: for the student who wishes to pursue his or her study of philosophy as a supplement to preparation in a wide variety of professions including business, law, government, the health professions, the ministry, or counseling.

2. PhD Emphasis: for the student who wishes to pursue his or her study of philosophy as a preparation for PhD studies in philosophy at another institution.

Students interested in the professional emphasis have the opportunity to choose from a wide variety of courses that support their career plans (biomedical ethics, health ethics, philosophy of law, philosophy of religion, and cognate courses in other disciplines).

Students interested in the PhD emphasis have the opportunity to enhance their understanding of the history of philosophy, logic, and metaphysics and epistemology.

Students in all of these programs are able to compete for teaching assistantships and to teach either Critical Thinking or Introductory Moral/Social Problems courses.

Prerequisites for admission to the program are 24 semester credit hours (at least 18 at the upper-division level) in philosophy including courses in the history of ancient philosophy, the history of 17th and 18th century philosophy (PHIL 3113 and 3213 or equivalents) and a course in logic (PHIL 3003 or equivalent). Students without these prerequisites, but otherwise admissible, may be granted "qualified" or "provisional" status until the prerequisites are satisfied.

The Master of Arts degree in Philosophy may be earned through any of the three options: (1) Thesis option (twenty-four credit hours of course work plus six credit hours of research in which a thesis is written); (2) Report option (thirty credit hours of course work plus two credit hours of research in which a report is written); (3) Creative Component option (thirty-two credit hours of course work including a creative component).

Students will prepare a plan of study under the guidance of the graduate adviser. All candidates for the Master of Arts in philosophy degree are required to pass two four-hour written examinations on selected major Western philosophical works. Each student is supervised by a three-person advisory committee appointed for, and in consultation with, the student.

A student may also, in accordance with the policies of the Graduate College, select a graduate minor in connection with the master’s degree in philosophy, thus permitting a concentration of work in broad areas such as social thought or cognitive science.

Students pursuing a master's or doctor's degree in another field may elect philosophy as a graduate minor. Selected courses and seminars in philosophy can broaden and complement work in such areas as economics, education, engineering, English, history, psychology, and sociology.

Physics

John W. Muttmeir, PhD—Regents Professor and Head

Physics is the science of matter, energy and their interactions. Physics majors learn the fundamental laws governing the natural world, and in so doing develop critical skills of observation and quantitative analysis in both experimental and theoretical settings. Because those skills are increasingly valued in diverse fields such as technology, the behavioral and social sciences, persons trained in physics are found not only in science, but also in fields where analytical skills are vital to success, such as finance, medicine, law and engineering.

The Department of Physics offers two bachelor's degree programs. First, the "BS in Physics" degree program is designed for students who seek a broad, comprehensive study of the set of traditional as well as contemporary topics which together comprise the subject of physics, and who ultimately may be interested in obtaining master's and/or doctoral degrees and becoming professional physicists or astronomers. In contrast, the "BS in Applied Physics" degree program has been developed for students who wish to combine studies in physics with studies in other areas such as biology, geology, business, computer science, engineering, mathematics, or pre-medicine, perhaps in preparation for graduate degrees in those areas. Interdisciplinary study is also possible through double majors with physics, a major in physics with minor in another subject, or minors in physics. The detailed requirements for all degree programs of the Physics Department can be obtained from the department office or its website: www.physics.okstate.edu.

Prospective physics majors should contact the departmental adviser as soon as
possible to guarantee a successful undergraduate career. A special freshman-level course, PHYS 1001, acquaints new physics majors with the department's professors and research, as well as each other. During their first two years, physics majors learn the laws of mechanics (forces and motion) and electromagnetism which epitomize the work of Newton and Maxwell, among others. At the same time, students develop their mathematical skills through courses in calculus and differential equations. A new sequence of calculus-based general physics courses, PHYS 2314 and 2414, is now in place for students who want to major in science fields in general, or physics, in particular. Students wanting to major in physics may take these courses in lieu of PHYS 2014 and 2114.

During their last two years, physics majors delve into advanced topics including the quantum and relativistic physics of Schroedinger, Einstein and their colleagues. Courses in laboratory and computational methods will also develop experimental abilities. Students are also encouraged to work in the department's research labs or astronomical observatory. Students pursuing the BS in physics will take additional physics courses and do a senior project. Students seeking the BS in applied physics will replace the additional physics courses with upper-division courses in their chosen areas.

Graduate Programs
Prerequisites. Thirty semester hours of physics beyond the elementary course work and mathematics courses through advanced calculus and differential equations are normally required.

The Master of Science Degree. Students can choose between a thesis or non-thesis plan. For both plans, the required courses are PHYS 5113, 5313, 5413, 5513 and 5613. The thesis plan requires the successful completion of a thesis containing a minimum of 30 semester credit hours beyond the BS and the submission of an acceptable thesis (six credit hours of PHYS 5000) based on original and independent research, on a topic chosen in consultation with the student's adviser. The student must satisfactorily defend a thesis in an oral examination. In addition, not more than 12 semester credit hours of electives must be completed in physics, mathematics or an allied field. The non-thesis plan requires 32 semester credit hours beyond the BS degree, including two credit hours of library research (PHYS 5000) on a topic chosen in consultation with the student's adviser. The completed written report must be orally presented to the student's advisory committee. Fifteen hours of electives are allowed within this program, including up to nine credit hours of senior level courses, depending upon the student's background. The electives must be chosen in consultation with the student's advisory committee. For example, an advanced course in mathematics along with Solid State I and II may be reasonable choices for someone with a materials specialization. For others, more courses in electrical engineering may be preferable.

Also available are two specialized options at the MS level. One is an option in optics and photonics, in association with the School of Electrical and Computer Engineering. Students may pursue one of two plans, both of which require 24 credit hours of course work with at least one course taken outside the student's specialization. Beyond this, the first plan (20 credit hours) requires an additional six hours research and a successful defense of a thesis. The second plan (32 credit hours) requires an additional six hours of course work and a two-credit-hour report. The second option in medical physics is designed to prepare graduate students for research and research careers in medical physics as in proton, x-ray, and other radiation-based medical therapies. This option entails a 30 credit hour program requiring PHYS 5453 and 5613, as well as six additional courses specific to Medical Physics to be chosen from PHYS 4663, 5233, 5533, 5663, 5573, 5583, and 5593.

The Doctor of Philosophy Degree. The following physics courses are required: PHYS 5113, 5213, 5313, 5413, 5453, 5613, 6313. Three additional PHYS prefix courses at the 5000 or 6000 level, including at least one course not in the student's specialization, must be completed. Additional courses reflecting the candidate's specialization may be required by the advisory committee. Ninety semester hours of credit beyond the bachelor's degree are required. A minimum of two-thirds of the graduate course credits must be in physics. No more than six credit hours of eligible physics course work at the 4000 level can be counted toward graduate credit and no more than 12 total credit hours of eligible course work in all subjects at the 4000 or 4000 level can be counted toward Graduate credit. Courses taken at another institution will be evaluated by a faculty committee to determine whether they satisfy any requirements. Prior to the appointment of the advisory committee, as described in the "Graduate College" section of the Catalog, a comprehensive written examination (the "Prelims") is administered by the department once a year. This examination will cover the content of the course work required up to and including the MS degree. The results of this examination are used as part of a review by the Department of Physics to determine whether the student should be allowed to form an Advisory Committee.

A Photonics PhD program involving electrical and computer engineering with Physics as the home department is also available. Details of the multidisciplinary photonics PhD program are found in the "Graduate College" section of the Catalog.

The most important single requirement for the PhD in physics is the presentation of an acceptable dissertation which represents original research work by the student and which demonstrates the student's ability to do independent study as well as to plan and carry out future research in his or her field. Full information on graduate programs in the Department of Physics is available from the Graduate Coordinator or from the department website at www.physics.okstate.edu.

Political Science
Jeanette M. Mendez, PhD—Professor and Head
Political Science is, on the one hand, an ancient discipline with roots in Plato and Aristotle, and on the other, it is one of the most recent of the social sciences with roots in the early twentieth century. Political scientists study political institutions, the political behavior of individuals and groups, the formulation of public policy, the relations among states, and also enduring moral issues, such as what is justice and how leaders should be chosen. Political science, by its very nature, blends normative and empirical issues. Questions about democracy, participation, justice, and representation have both empirical and evaluative components. The discipline attempts to understand who participates in the political process and why. A major goal of Political Science offers the student a front row seat in the analysis of these questions. The principal fields of study in Political Science are political theory, public law, comparative politics, international relations, public administration, and policy analysis. Students specializing in political science and related course work in addition to General Education and college requirements, or the Bachelor of Science degree (45 hours of political science and related course work in addition to General Education and college requirements) in Political Science with a concentration in any of the fields of study. Either degree option requires a minimum of 27 hours of political science courses in numbered 3000 or above, three of which are capstone experience. Additional courses numbered 3000 or above from related areas of economics, English, foreign languages and literature, geography, history, philosophy, psychology, religion or sociology are necessary to reach the required hours of the degree option. The minimum GPA is 2.50 with a minimum grade of "C" in all upper-division political science and related upper-division course work.

Candidates for the Master of Arts degree in political science complete a minimum of 18 hours of study and devote time remaining for society. A major goal of Political Science offers the student a front row seat in the analysis of these questions. The principal fields of study in Political Science are political theory, public law, comparative politics, international relations, public administration, and policy analysis. Students specializing in political science and related course work in addition to General Education and college requirements, or the Bachelor of Science degree (45 hours of political science and related course work in addition to General Education and college requirements) in Political Science with a concentration in any of the fields of study. Either degree option requires a minimum of 27 hours of political science courses in numbered 3000 or above, three of which are capstone experience. Additional courses numbered 3000 or above from related areas of economics, English, foreign languages and literature, geography, history, philosophy, psychology, religion or sociology are necessary to reach the required hours of the degree option. The minimum GPA is 2.50 with a minimum grade of "C" in all upper-division political science and related upper-division course work.

Candidates for the Master of Arts degree in political science complete a minimum of 18 hours of study and devote time remaining for society. A major goal of Political Science offers the student a front row seat in the analysis of these questions. The principal fields of study in Political Science are political theory, public law, comparative politics, international relations, public administration, and policy analysis. Students specializing in political science and related course work in addition to General Education and college requirements, or the Bachelor of Science degree (45 hours of political science and related course work in addition to General Education and college requirements) in Political Science with a concentration in any of the fields of study. Either degree option requires a minimum of 27 hours of political science courses in numbered 3000 or above, three of which are capstone experience. Additional courses numbered 3000 or above from related areas of economics, English, foreign languages and literature, geography, history, philosophy, psychology, religion or sociology are necessary to reach the required hours of the degree option. The minimum GPA is 2.50 with a minimum grade of "C" in all upper-division political science and related upper-division course work.

Candidates for the Master of Arts degree in political science complete a minimum of 18 hours of study and devote time remaining for society. A major goal of Political Science offers the student a front row seat in the analysis of these questions. The principal fields of study in Political Science are political theory, public law, comparative politics, international relations, public administration, and policy analysis. Students specializing in political science and related course work in addition to General Education and college requirements, or the Bachelor of Science degree (45 hours of political science and related course work in addition to General Education and college requirements) in Political Science with a concentration in any of the fields of study. Either degree option requires a minimum of 27 hours of political science courses in numbered 3000 or above, three of which are capstone experience. Additional courses numbered 3000 or above from related areas of economics, English, foreign languages and literature, geography, history, philosophy, psychology, religion or sociology are necessary to reach the required hours of the degree option. The minimum GPA is 2.50 with a minimum grade of "C" in all upper-division political science and related upper-division course work.
1. Have significant practical experience in a fire or emergency service organization.
2. Have a bachelor’s degree in fire or emergency related discipline such as fire protection technology, fire management administration, fire science, emergency management administration; or
3. Not meeting the above specified in 1 or 2, above, complete a minimum of 12 hours of undergraduate study in fire protection and/or emergency management. Three of 12 hours must be an internship experience in fire or emergency management.

A complete application for admission to the master’s program must include:
1. A completed Graduate College application submitted with a non-refundable application fee.
2. An official copy of undergraduate transcript(s).
3. Three letters of recommendation with at least one from an employer or faculty member familiar with the applicant’s academic abilities.
4. TOEFL results for students for whom English is a second language.
5. A brief letter indicating interests and other information the applicant considers relevant.

Degree Requirements for the MA in Political Science. In addition to the general requirements of the Graduate College, requirements for the Master of Arts degree in political science are listed below.
1. A minimum of 33 credit hours in political science or closely related courses. These include: including nine required hours in research methods and foundations of Political Science (POLS 5103, POLS 5013, POLS 5023); three required American Politics (POLs 5703, 5403, International Relations-POLS 5203); at least nine hours of electives in two subfields (American Politics, Comparative Politics or International Relations); and a three hour "creative component" or six hour thesis. A minimum of 21 hours of political science graduate seminars (seminars numbered 5000 or above) is required. The student must successfully defend the thesis or creative component orally before the faculty committee.
2. Satisfactory completion of comprehensive exams in two of the following areas: American politics, comparative politics, international politics.
3. Minimum 3.00 grade-point average, with only one grade of "C" allowed.

Degree Requirements for the MS in Fire and Emergency Management Administration. In addition to the general requirements of the Graduate College, requirements for the Master of Science degree in fire and emergency management administration are listed below.
1. A minimum of 39 credit hours in political science or closely related courses. Required courses include a nine hour scope of the field core requirement, a nine hour methods requirement, and twenty-one hours selected from either a fire administration or emergency administration specialization track. Students must complete a three-hour practicum research project or a thesis with a minimum of six hours, Pre-service students are required to take a three-credit hour internship.
2. Minimum 3.00 grade-point average, with only one grade of "C" allowed.

Admission Requirements for PhD in Fire and Emergency Management Administration. In addition to the Graduate College admission requirements, include the following:
1. An OSU Graduate College Application, payment of the OSU Graduate Application fee, and official transcripts of all previous college level course work including official transcripts that verify receipt of an undergraduate and graduate master’s degree.

In addition, to the materials required by the Graduate College, applicants must meet the following departmental program admission requirements and provide the following documentation:
1. Undergraduate Degree: For the Fire Administration Track, an undergraduate degree in fire science, fire management, or a closely related degree. For the Emergency Management Administration Track, an undergraduate degree in emergency management or a closely related degree.
2. Master’s Degree: For the Fire Administration Track, a Master of Fire and Emergency Management Administration, Master of Public Administration, or closely related degree. For the Emergency Management Track, a Master of Fire and Emergency Management Administration, Master of Emergency Management, Master of Public Administration, or similar degree.
3. GPA: Both Tracks require a minimum cumulative GPA of 3.0.
4. GRE: For both Tracks, scores from the Graduate Record Examination taken within the past two (2) years. A combined GRE score of 1100-1300 on the verbal and quantitative general exam is preferred but not required.
5. Professional Experience: For the Fire Track, professional experience in a mid-to senior-level management position in the fire service or related first responder services is preferred, but not required. For the Emergency Management Track, professional experience in emergency management or a related field is preferred but not required.

Research Skills: For both tracks, evidence of strong research skills as evidenced by research related course work and grades recorded on official transcripts and examples of authored research documents included in the Application Portfolio (see below).

7. English Language Proficiency: For international students, both Tracks require a minimum TOEFL score of 101 (Internet) and 607 (paper).
8. Application Portfolio that includes a current resume, three letters of recommendation, a career goals essay, and copies of published materials authored by the candidate.

Degree Requirements for the PhD in Fire and Emergency Management Administration. Degree candidates must have completed a master’s degree. In addition, they must complete 39 hours of required common course work that includes 15 hours in a common core, 9 hours of research tools, and 24 hours of dissertation research. An additional 21 hours of courses are required in either a fire service administration track or an emergency management administration track. Finally, candidates must take oral and written qualifying exams and must successfully defend their dissertation before their dissertation committee. Most courses in the FEMP PhD program are conducted in the department’s state-of-the-art virtual classroom, where both on-site and off-site students participate simultaneously in the same class sessions.

Psychology
Thad Lefingwell, Ph.D.—Associate Professor and Head
The student pursuing a BA or BS in psychology is provided with a background which can be of great value in dealing with the personal, social and vocational areas of his or her life. The course of study applies the scientific method to the study of the behavior of an individual and behavior between individuals. The understanding of such material is directly related to a variety of vocational opportunities. In addition, students may take advantage of opportunities to work with faculty in research or in teaching to gain additional experience. Such experiences are especially helpful to those students wishing to pursue graduate education in psychology or related fields.
A bachelor’s degree in psychology is useful in a wide number of occupations in business, education and industry. The range of positions obtained by graduates covers almost all occupations requiring direct personal contact with other people. Some examples are supervision, training, sales, public relations and interviewing. Also included are positions with city, state and federal agencies, and in applied research. Although there is no licensure or certification to teach psychology in the schools, it is possible to earn a teaching certificate or license in social studies education with endorsement in psychology while pursuing a major in psychology. Persons interested in such teaching should contact the Office of Professional Education. (See "Professional Education Programs" in the "College of Education" section of the Catalog.)

The department also offers courses in speech communication to enhance the student’s ability to effectively communicate in the interpersonal, organizational and public contexts. Both conceptual knowledge and practical application are stressed to prepare students to begin careers in business and industry, or to enter graduate or professional schools.

Graduate Programs
Employment in the professional field of psychology requires a graduate degree. Psychologists with advanced degrees have exclusive claim to some professional positions.

The Department of Psychology offers two programs of study leading to the degree of Doctor of Philosophy, one in Clinical Psychology and one in Experimental Psychology. Students applying for the doctoral degree should have the following prerequisites: introductory psychology, quantitative psychology, experimental psychology, history and systems. Abnormal psychology is recommended for students applying to the clinical program.

Students in the doctoral program first work toward a Master of Science degree. In addition to meeting the general requirements of the Graduate College, for completion of the Master of Science, students must also:
1. Complete two semesters of quantitative psychology along with other course credits totaling 30 credit hours.
2. Complete a thesis project, supervised and reviewed by appropriate faculty members.

Following the completion of requirements, the student may be admitted to doctoral status in Clinical Psychology or Experimental Psychology.

Religious Studies
Bruce Crader, Ph.D.—Director
Courses in religious studies are a vital part of a liberal arts education. The field involves the objective study of religious belief, literature and practice around the world. Opportunity is given for serious and objective study of these aspects in relation to major religions of past and present cultures. Special attention is given to the historical bases of world religions as well as to their effect upon present-day societies, in both the East and West. Courses are offered in several world religions, biblical studies, religious thought, and religion and culture.

Courses are open to all students without regard to personal views or affiliations.
No attempt is made to promote a particular view. Emphasis is placed on the academic study of religion rather than the practice of a particular form of religion.

Many of the undergraduate courses enable students to satisfy humanities requirements and also provide an excellent background for many types of graduate and professional programs.

**Sociology**
Duane A. Gill, PhD—Professor and Head
Sociology is the scientific study of human society and social behavior. Sociologists study a broad array of social phenomena ranging from the dynamics of social interaction to the composition and workings of entire societies.

The diversity of the faculty is reflected in the many different types of courses offered. Topics include environment and population; criminology; law and society; organizations, inequality; social psychology; race, ethnicity and gender.

Many undergraduate majors take advantage of the applied research option by selecting supervised work-related internships.

The Department of Sociology offers BA and BS degrees in general sociology and applied sociology. The general sociology degree provides students the opportunity to obtain a strong liberal arts degree with a maximum number of electives, and provides a good base for pursuing a professional or graduate degree in sociology and in several other fields of study. The applied option focuses on law, crime, social justice; environment and social services and provides practical experience for work in a variety of settings.

The option in anthropology provides students with a basic introduction into methods, theory and principles of cultural anthropology, archaeology, and physical anthropology. Regular course offerings introduce students to past and present cultures within and outside the United States.

**Graduate Programs**
The Department of Sociology offers the Master of Science degree with a thesis, or non-thesis (terminal degree) options, and the Doctor of Philosophy degree.

Programs are designed to prepare students for appointments to the faculties of colleges and universities, to work in private industry and social service agencies, and research positions in business and government. The department offers concentrations in environmental sociology, social inequality, social movements, deviance and criminology, and social psychology.

**Degree Requirements.** The MS in sociology, thesis option, requires a minimum of 31 hours of course work. The MS in sociology, non-thesis option requires 32 hours of course work. Students pursuing the MA, a minimum of 35 hours, 39 credit hours beyond the baccalaureate, or 64 hours beyond the master's degree, is required. Each PhD student is required to take nine hours of sociological theory, six hours of research methods, and nine hours of statistics. Detailed information on each program is available on the Departmental website.

**Statistics**
Mark Payton, PhD—Professor and Head
Statistics is the science of learning from data. It is concerned with the development of theory and with the application of that theory to the collection, analysis and interpretation of quantitative information.

Because statistics is important in many scholarly disciplines, a degree in statistics provides the opportunity to enter not only the statistics profession but also many other fields which make extensive use of statistics. The areas of application include agriculture, the biological sciences, engineering, the physical sciences, the social sciences, education, business and home economics, among others. Statistics also promises to be important in emerging endeavors such as pollution and environmental research, energy utilization and health-care administration.

Those who pursue the study of statistics should be interested in scientific inquiry and should have a good mathematical background. In addition it is desirable that they have a genuine interest in some other subject which uses statistics.

Careers in government, industry and education, involving the disciplines previously mentioned, are open to the statistics graduate. In government and industry a statistician usually serves as a researcher or as a consultant to research scientists and decision-makers. In education, of course, the teaching function is added to those of research and consultation. In almost all careers, the statistician uses the computer.

The Statistical Laboratory operates within the department to provide statistical consulting to researchers—both faculty and student—across the campus.

The Department of Statistics offers the BS and MS degrees to those interested in applications of statistics, and the PhD degree to those who wish to make original contributions to the theory of statistics.

**Graduate Programs**

**Admission Requirements.** It is necessary to have an undergraduate degree, not necessarily in statistics or mathematics, to begin a program of study toward the master's degree in statistics. In some instances, it may be advantageous to have an undergraduate degree in another field. However, the student should have acquired a good mathematical background as an undergraduate. This should be equivalent to the required mathematics courses in the bachelor's program (MATH 2144, 2153, 2163, 3103, 4013). Students admitted to the program with deficiencies will be required to remedy such deficiencies.

The Master of Science Degree. The Master of Science degree in statistics may be completed by following one of the three plans listed in the "Graduate College" section of the Catalog. Normally, the all-course work plan will be initiated at the suggestion of the faculty. Each student will be required to attain an introductory knowledge of some field of application outside of statistics, mathematics and computer science. This requirement may be satisfied by having taken a three-hour graduate course in an approved field of statistical application. Each student is required to have completed CS 1113 or to have demonstrated competence in a procedure-oriented language such as C or FORTRAN.

The Doctor of Philosophy Degree. The PhD requires the completion of 90 hours beyond the BS degree. A maximum of 30 of these credit hours may be earned by research for the dissertation. Each student will be required to attain an introductory knowledge of some field of application which may be satisfied by taking two three-hour graduate courses outside the fields of statistics, mathematics and computing. Each student is required to have completed CS 1113 or to have demonstrated competence in a procedure-oriented language such as FORTRAN.

**Theatre**
Andrew Kimbrough, PhD—Professor and Head
The Department of Theatre offers the Bachelor of Arts in Theatre degree.

The BA degree is a generalist degree, designed to provide a broad background in practical and theoretical areas while allowing students to develop an area of emphasis. The BA in Theatre is a comprehensive 48 hour degree with course work in performance, technical theatre, directing, design, theatre history and dramatic literature. Students may elect an emphasis in performance, technical theatre, design, or a combination of performance and design/tech. This degree program is ideally suited for students interested in several areas of performance and production and who desire a comprehensive education in every aspect of theatre. The size of the degree plan allows for students to pursue a double major or minor in another discipline.

An active production program in two well-equipped theatre spaces augments course work. The regular production schedule consists of four faculty-supported main stage productions each year and two to four studio productions that are primarily directed, designed, and performed by students. Students also have the opportunity to study with a variety of guest artists and scholars during each academic year.

In addition to professional careers in acting and production, this major can lead to careers in arts management, teaching, law, counseling, or any career area where effective personal communication, team work, problem solving, and creativity are essential.

**Graduate Programs**
The department offers course work leading to the Master of Arts degree in Theatre. The Master of Arts degree in Theatre is an initial graduate degree designed to build on students' individual theatre skills and to deepen a student's theoretical and practical understanding of the art form. Accepting only a limited number of students each year, the program affords a great deal of individual contact with faculty members and considerable latitude in developing the plan of study.

Graduate candidates take a core of graduate level courses in theatre history, theory, and directing, augmented by other courses available in the department and the university to develop and support their areas of special interest. Typically students accepted into this degree program pursue careers in professional theatre, become teachers in secondary schools or two year colleges, or they prepare for the pursuit of advanced degree work in a Master of Fine Arts or Doctoral program.

The Master of Arts degree may be achieved in accordance with any of the three plans described in the section "Master's Degree Programs" in the "Graduate College" section of the Catalog.

A limited number of graduate teaching assistantships (GTAs) are available to highly qualified students. Information and application forms may be obtained from the department head.

Undergraduate credentials should be referred to the department graduate program coordinator for evaluation to assist advisement and to determine any possible deficiencies that will affect the admission status.

**Zoology**
Lauren Ritter, PhD—Regents Professor and Head
The Department of Zoology offers BS degree programs in biological science, physiology, and zoology.

The undergraduate degree in biological science is appropriate for students wanting to obtain a broad background in the life sciences. Students complete course work in animal, plant and microbial biology, genetics, ecology, physiology and evolution. This degree meets the requirements for admission to graduate and professional schools, and also prepares students for a broad range of biology-related employment opportunities.
The undergraduate degree in physiology also serves as preparation for graduate school or a medically-related professional school. The bachelor’s degree in physiology requires participation in an undergraduate seminar and intensive course work in general biology, genetics, comparative anatomy, mammalian physiology, biochemistry, mathematics, physics, and chemistry.

The curriculum in zoology is designed to provide a thorough background in the biology of animals, and prepares students for graduate school and many applied and professional careers. The zoology degree requires courses in ecology, evolution, genetics, and vertebrate and invertebrate zoology. Students participate in unique research experiences and/or internships, and develop a good foundation in the related fields of chemistry, physics, and mathematics.

Graduate Programs

Programs of Study. Programs of study leading to MS and PhD degrees are offered in zoology. The department emphasizes Ecology and Evolutionary Biology and Environmental Stress. Among faculty research interests are behavioral and evolutionary ecology, conservation biology, cytogenetics, ecotoxicology, ecosystem services, ecological immunology, behavioral endocrinology and neuroendocrinology, theoretical ecology, invertebrate ecology, ichthyology, herpetology, ornithology, mammalogy, parasitology, landscape ecology, molecular systematics, population ecology, aquatic and wetland ecology, and science education. The department includes the Ecotoxicology and Water Quality Research Laboratory and the Oklahoma State University Collection of Vertebrates.

Prerequisites. Applicants must have completed a baccalaureate degree including 40 semester hours in biology and related areas and have completed the Graduate Record Examination.

The Master of Science Degree. Students must prepare a research proposal and complete either a thesis or a report. For the thesis option, 30 credit hours are required; for the report option, 32 credit hours.

The Doctor of Philosophy Degree. Students must prepare a research proposal, pass written and oral comprehensive examinations, and complete a dissertation based on original research worthy of publication. Most students enter the program already with a MS degree and their plan of study must include 60 credit hours. Exceptional students can enter the program directly following the BS; their plan of study must include 90 credit hours.

Financial Aid. The department employs more than 35 graduate teaching assistants (TA). Faculty members also award research assistantships (RA) based on ongoing grants and contracts. Out-of-state students on RA or TA support are assessed in-state tuition only. However, in-state and out-of-state students on RA or TA support also receive full or partial waivers of in-state tuition.

Research Facilities. The Department of Zoology occupies a six-floor building with offices, classrooms, laboratories, and animal rooms. A broad range of instrumentation is available for both teaching and research. The department maintains laboratories in wildlife toxicology, genetic toxicology, conservation genetics, geographic information systems and remote sensing, and water quality. Specialized equipment within the department includes atomic absorption spectrophotometers, ultraviolet and visible spectrophotometers, ion chromatographs, high pressure liquid chromatograph, liquid scintillation counter, ultracentrifuges, gas chromatograph, ion specific electrodes, forage fiber analyzer, bright field and ipepifluorescent microscopes and photomicrography systems, cryostats, laminar flow hoods, tissue culture equipment, PCR thermocyclers, ultracold freezers, horizontal starch, agarose, and polyacrylamide gel apparatus, automated DNA sequencer, and computer labs. Available for use in field studies is the university-owned Lake Carl Blackwell area. The Department of Zoology also houses the OSU Collection of Vertebrates which includes over 25,000 lots of fish, 14,000 reptiles and amphibians, 3,000 birds, and 13,000 mammals.
The College of Education (COE) includes the schools of Applied Health and Educational Psychology, Teaching and Curriculum Leadership, and Educational Studies. The College offers a wide range of undergraduate and graduate programs to prepare individuals for careers in teaching, administration or research in the professional field of education either in the public schools or in institutions of higher education. There are a variety of degrees within the College at the bachelor's, master's, specialist and doctor's levels that prepare individuals for productive lives in the global community (see the "Degree Programs" section of the Catalog).

Accreditation

In the College of Education, the aviation programs are accredited by the Aviation Accreditation Board International (AABI). The counseling psychology program and the school psychology program are accredited by the American Psychological Association. The school psychology program also is accredited by the National Association of School Psychologists. The counseling program with options in Community Counseling and School Counseling are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The leisure studies program, with options in leisure service management and therapeutic recreation, is accredited by the National Recreation and Park Association in cooperation with the American Association for Leisure and Recreation. Athletic training is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). All professional education programs are accredited by the Council for the Accreditation of Educator Preparation (CAEP) formerly named the National Council for Accreditation of Teacher Education (NCATE), Oklahoma Commission for Teacher Preparation, and the North Central Association of Colleges and Secondary Schools. Career and Technical education professional education programs are also accredited by the Oklahoma State Department of Career and Technical Education.

Statement on Diversity

The College of Education is committed to the promotion and affirmation of diversity in the broadest sense. We highly value the dignity and worth of individuals inclusive of their gender, race, ethnicity, nationality, sexual orientation, age, physical and mental abilities, religious beliefs, socioeconomic class, and other identities. Valuing diversity also extends to diversity of thought and perspective. We promote and create a dynamic community for personal transformation and social change with an atmosphere of respect and trust in which individuals explore, discuss, and express their beliefs with one another.

High School Preparation

Students are expected to satisfy the high school curriculum requirements as determined by the Oklahoma State Regents for Higher Education. It is recommended that students be involved in clubs and organizations as well as have had some experiences working with children and youth, or other experiences related to their chosen fields.

Admission Requirements

Freshman students are admitted to the College of Education consistent with criteria published for admission to the University. Criteria for students wishing to transfer into the College of Education include a required minimum grade-point average based on the University graduation and retention grade-point average policy.

<table>
<thead>
<tr>
<th>Total hours attempted</th>
<th>Minimum GPA required</th>
</tr>
</thead>
<tbody>
<tr>
<td>fewer than 31</td>
<td>1.70</td>
</tr>
<tr>
<td>31 or more</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Students pursuing degree options in career and technology education non-certification option or leisure are required to maintain a 2.00 GPA. Students pursuing a degree in Elementary Education or Health Education and Promotion are required to maintain a 2.75 GPA. All other degree options require a 2.50 GPA.

Requests from students seeking readmission after having been placed under probation/suspension should be submitted to the Watson Family Student Success Center in the College of Education and will be reviewed by the Director of Student Academic Services prior to readmission. All student grades are reviewed at the end of each semester to determine whether appropriate academic progress is being made.

For graduation, with recommendation for Certification in Professional Education, the following minimum GPAs are required: (1) a 2.50 overall GPA (Elementary Education requires a 2.75); (2) a 2.50 GPA in the Major Requirements except Secondary Education English which requires 2.75; (3) a 2.50 GPA in Professional Core Requirements; and (4) where noted, a 2.50 GPA in the College/Departmental Requirements. The student must earn minimum grades of “C” or “P” in each course in the Major Requirements, the Professional Core Requirements, and where noted, the College/Departmental Requirements. The student must earn grades of “C” or “P” in all sections of observation (lab and clinical experience) courses and clinical practice for recommendation for Certification.

Scholarships

The College of Education offers scholarships for undergraduate and graduate students in the School of Applied Health and Educational Psychology, School of Teaching and Curriculum Leadership and the School of Educational Studies. An up-to-date listing for COE Scholarships can be found at education.okstate.edu/students/scholarships.

Abercrombie, Betty Memorial Endowed Scholarship
Adkins, Mike Memorial Scholarship
Albers, L. Mignon Scholarship
Aligood Family Scholarship
Bellmon, George D. and Edith Eleanor Caskey Endowed Memorial Scholarship
Benson, Ann and Gene Endowed Scholarship
Berlin, Grace, James and Tammy Scholarship
Bird, James and Gary Bird Memorial Endowed Scholarship
Blair, Mary Francis Endowed Scholarship in Aviation
Bliss Family Aviation Management Scholarship
Boeing Company Aerospace Logistics Scholarship
Branstetter, Paula G. Aviation Endowed Scholarship
Brown, Ray E. Memorial Endowed Scholarship
Broyles-Willard Family Endowed Scholarship
Buckles, William R. and Billie D. Endowed Scholarship
Burke, Jim and Linda Scholarship
Burton, Jerry and Mary Endowed Scholarship
Cashel, Christine Endowed Professional Scholarship
Chauncey, Vera Jones Memorial Endowed Scholarship
Christiansen Aviation Scholarship
Close, Bryan, Transfer Student Scholarship
College of Education Alumni Association Undergraduate Endowed Scholarship
College of Education AlumniAssociation Freshman Endowed Scholarship
College of Education Alumni Association Minority Endowed Scholarship
College of Education Alumni Association Graduate Endowed Scholarship
College of Education Associates Endowed Scholarship
College of Education Dean's Academic Excellence Scholarship
Collins, W. Opal Eastep Endowed Scholarship
Colley, Valerie Endowed Scholarship
Cooper, Dr. Donald Endowed Scholarship in Athletic Training
Conforth, Patricia Scholarship
Cumberledge, Gretchen Lynette Memorial Scholarship
Cunningham, Mary Marie Memorial Endowed Scholarship
Cusick Family Endowed Scholarship
Dickman, Marcia Endowed Scholarship
Dorsey, Billy J. Endowed Scholarship for Aviation Education
Dotson, Rachel Endowed Scholarship
Dugger, Tom J. and H. Ann Endowed Scholarship
Earls, Larcisha Diane Stephens Memorial Endowed Scholarship
Ebert, Bill and Nita Scholarship
England, Paul and Martha Family Scholarship
Eriksson, Alice R. Memorial Endowed Scholarship
Esikimo Joe's Future Teacher Endowed Scholarship
Esslinger, Charles A. Outdoor Recreation Endowed Scholarship
Frye, Drs. Mary & Moses Endowed Scholarship
Gillcrist, Thomas Foundation Endowed Scholarship in Aviation
Harrison, A.B. Endowed Scholarship
Harry, Robert Endowed Scholarship
Hayes, Dr. Roberta R. Memorial Endowed Scholarship in Career and Technical Education
Hedrick, Frank E. & Harriet E. Aviation Endowed Scholarship
Henderson, Ora A. Memorial Endowed Scholarship
Herdt, Daniel & Mary Memorial Endowed Scholarship
Holley, J. Andrew Memorial Endowed Scholarship
Holmes, Viola Lacher Endowed Scholarship
Horner, Jo Griffith Endowed Scholarship
James, Johny and Kevin Aviation Endowed Scholarship
Jameson Family Endowed Scholarship
Jeskey, Arlene Starrett Scholarship in Math Education
Jewell, Jan Endowed Scholarship
Jones, Helen M. Endowed Scholarship
Jordan, Henry S. and Wanda Family Endowed Scholarship
Jordan, Martha Endowed Scholarship
Jungers, Richard & Edna Endowed Scholarship
Kamm, Robert & Maxine Distinguished Graduate Endowed Fellowship
King, Kenneth & Peggy Endowed Scholarship
Kirkand Family Endowed Scholarship
Knoblauch & Patricia Endowed Scholarship
Kunce, Anton and Pearl Scholarship
Kunze, Lawana Scholarship
Ledbetter, Myron C. Diversity Endowed Scholarship
Leid Family Endowed Scholarship
Lentz, Gary Memorial Flight Scholarship
Linehan, John C. & Caroline S. Endowed Scholarship
Locke, Wright, Foster, & Cross Educational Endowed Scholarship
Long, Hal & Jean Endowed Scholarship in Elementary Education
Looper, Lura Schoenleiber Memorial Endowed Scholarship/Elementary
Lotven Family Endowed Scholarship
Luinstra, Brian Memorial Endowed Scholarship in Athletic Training
Lynn, Harry and Betty Memorial Endowed Scholarship
Marks, Steven and Janet Endowed Scholarship
Marsh, Anne Endowed Scholarship
Martin, Joe E. Scholarship
McGeehe, Janet Bourland Family Endowed Scholarship
McMaster, James H. Flying Aggies Endowed Scholarship
McMullen, Colleen & George Endowed Scholarship
Mills, Ted Endowed Scholarship in Environmental Education
Morgan, Clayton A. Excellence Endowed Scholarship
Morison, Jaydene Scholarship
Morsani, Frank L. & Carol D. Endowed Scholarship - Undergraduate
Morsani, Frank L. & Carol D. Endowed Scholarship - Graduate
Mosier, Richard Harper Leadership in Higher Education Endowed Scholarship
Munson, Leon L. Memorial Endowed Scholarship
Neilson, Tracey Waterfield Memorial Endowed Scholarship
Nemecek, Col. Glen Aviation Endowed Scholarship
Noble, Judy Endowed Scholarship
Oaks, Mable Marietta Macey Memorial Art Endowed Scholarship
Oaks, Percy W. Sr. Memorial Art Endowed Scholarship
Oklahoma Teacher of the Year (OKTOY) Endowed Scholarship
Parrack, Doyle Endowed Scholarship
Peacher, Lynn Bill Endowed Scholarship
Philips, D.E. Family Endowed Scholarship
Pitts, Joel G. Aviation Endowed Scholarship for Professional Pilot Training
Poe, Ron and Ginny Endowed Scholarship
Poorman, Mary Elizabeth Choate and Ralph U. Poorman Memorial Scholarship
Price, Emma Ingersol Scholarship
Prince, James Leonard Endowed Memorial Scholarship
Reitmeier, Georgian Wallace Endowed Scholarship
Rezabek, Frankie Bohanan Endowed Scholarship
Rollins-Wade, Myr-Lou Endowed Scholarship
Schwarz, Donna Scholarship
Seidle Family Foundation Endowed Scholarship in Education
Sharpdon, Wendell Family Endowed Scholarship
Shaw, Thelia Sewell Memorial Scholarship
Smith, Kathryn, Alumni, Doug and Davia Wilson Endowed Scholarship
Shriver, Madeline D. Endowed Scholarship
Smith, Stephen and Rebecca Endowed Scholarship
Smith, Thomas J. Endowed Scholarship
Sorenson, Helmer & Frances Endowed Scholarship in Educational Leadership
Spradling, Scott and Suzanne Science Education Endowed Scholarship
St. Clair, J. Kenneth Endowed Scholarship
Stone, Lana B. Diversity Endowed Scholarship
Stone, Toni and Bill Endowed Scholarship
Student Development Endowed Scholarship
Sumpter, Mildred H Endowed Scholarship
Sutton, Eddie Endowed Scholarship in COE
Trammell, Jane Memorial Endowed Scholarship
Ulrich, John Memorial Endowed Scholarship
Vandegrift, James R. Memorial Endowed Scholarship
Vermillion, Robert, Francille, Harry, and Jon Endowed Scholarship
Wagner, Amy Louise Endowed Scholarship
Waits, Gene Endowed Scholarship
Walker, Don and Jackie Endowed Scholarship
Waterfield, R. Bruce and Robert D. Raab Athletic Training Endowed Scholarship
Watson, Kim R. Endowed Scholarship in Education
Watson, Kim R. President's Distinguished Endowed Scholarship
Wheeler, Mary Echo Endowed Scholarship
White Endowed Scholarship
Wiggins, Lloyd L. Memorial Endowed Scholarship
Wiggins, Kenneth & Margaret Aviation Endowed Scholarship
Williams, John K. and Beverly D. Family Trust Scholarship
Winter, Pauline Endowed Professional Scholarship
Womack, Katie Memorial Scholarship
Xerox Corporation Endowed Scholarship

Watson Family Student Success Center

Academic Advising
Academic advisement for undergraduate students is provided by the Watson Family Student Success Center, located in 106 Willard, in the College of Education. Students are assigned to a particular academic adviser in the Watson Family Student Success Center depending on the student's declared major. Academic advisers confer with their advisees on such matters as vocational counseling, course selection, academic problems, long-range professional goals, and semester by semester enrollment.

The requirements for the degree being sought are made known to the student when he or she first enrolls at Oklahoma State University. While the curriculum may change before a student graduates, a student who makes normal progress toward graduation (no more than two years beyond the normal four-year bachelor's degree requirements) will be held responsible for the degree requirements at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or delayed graduation.

Collegiate Success Program. The goal of the Collegiate Success Program is to assist students with their success in the classroom. This program individualizes assistance for those students who have been placed on academic probation. The Collegiate Success Program has three objectives which include:
- Assisting students in identifying individual strengths and needs.
- Assisting students in establishing academic goals based on those strengths and needs.
- Providing students with the skills necessary to succeed at the collegiate level.

For more information logon to education.okstate.edu.

Graduation Check. The College of Education Office of Student Academic Services prepares a graduation check that indicates the undergraduate's status toward completion of degree requirements. For those students in Professional Education, teacher licensure requirements are included in the graduation check. Undergraduates may request, through their academic advisers, that the graduation check be completed. Students can review degree progress on the web (ISIS web for students).

Career Services. The College of Education has a career consultant available. The career consultant provides seminars and one-on-one advisement in career-related topics such as job search strategies, resume development, interviewing skills, and career transitions. The services are available to undergraduate and graduate students and alumni. The career consultant also partners with many employers, including school districts, hospitals, non-profit organizations, and corporations, encouraging them to hire OSU graduates from the College of Education.

Special Academic Programs

OSUTeach. The OSUTeach program is designed to recruit and train new secondary teachers in science and mathematics. OSUTeach offers four-year STEM degree options in biological science, chemistry, geology, mathematics, and physics, which lead to teacher certification at the secondary level. OSUTeach is a collaboration between the College of Education and the College of Arts and Sciences. OSUTeach students begin supervised teaching in K-12 classrooms during their first semester in the program and continue these field experiences throughout their coursework, which culminates with apprentice teaching.

Bachelor of University Studies. The College of Education utilizes the Bachelor of University Studies degree program along with the other colleges in the University. Unique career objectives of students may be met by working with a faculty committee and academic advisers in selecting a specially-tailored program that ultimately leads to a degree.

The Honors College. Outstanding students in the College of Education who meet the requirements of the Honors College may earn The Honors College degree while completing their undergraduate degree in this college. For more information, please refer to the Honors College information in this Catalog.

Tutoring Program. The Reading and Math Learning Center within the School of Teaching and Curriculum Leadership offers elementary education undergraduate and graduate students a faculty-supervised opportunity to tutor school-age children interested in improving their reading and math skills.

Professional Development Conferences. Professional education students and alumni are encouraged to attend the annual Celebration of Teaching Conference on the OSU campus held in April. Additional outreach conferences may include the Elementary School Principals, the Oklahoma Association of Environmental Educators; the Oklahoma Education Association Annual Leadership Academy; the Oklahoma Technology Administrator's Conference and the Adult Basic Education Conference.
Alumni Association. The College of Education Alumni Association distributes a quarterly newsletter to its over 3,000 active members. The organization provides professional support and an immediate network of professional contacts. The Alumni Association provides scholarships for students in the College of Education. Graduates attending commencement receive an invitation for a one-year complimentary membership to the Alumni Association. The organization also sponsors a Homecoming reception and other welcome events for students and faculty gatherings.

General Education Requirements
All undergraduate degrees in the College of Education require a minimum of 40 semester hours in general education that include the following: English Composition, analytical and quantitative thought, United States history and government, natural science, social and behavioral studies, arts and humanities, diversity, international dimension and electives. All degrees are consistent with the current University General Education requirements and the Oklahoma State Board of Education standards.

Departmental Clubs and Honor Societies
Athletic Training Student Association
College of Education Graduate Student Association
Education Student Council
Elementary Educators of Tomorrow
Flying Aggies
Health Promotion Club
Kappa Delta Pi (education honor society)
Kappa Kappa Iota
Leisure Club
Phi Epsilon Kappa (health, physical education, leisure honor society)
Physical Education Club
School Psychology Graduate Student Organization
Student Ambassadors
Student Education Association

Education Outreach and International Studies
Education Outreach and International Studies work together to facilitate the delivery of COE course work and academic programs. Consistent with the OSU mission and in conjunction with faculty and academic programs in the COE, Education Outreach and International Studies provide support, services and programs to meet the professional needs of educators advancing the state of Oklahoma and the nation while promoting and facilitating engagement of the college and university with state, national, and international communities. The goals of Education Outreach and International Studies are to reflect the expertise and promote the accomplishments of the College of Education faculty and staff and to foster activities and learning that develop faculty and students for multiple futures. Specifically, these offices work to:

- facilitate campus-based degree credit which enables students to pursue their academic goals in ways that fit their schedule and personal situations;
- extend off-campus degree programs to individuals pursuing degrees and professional certifications through a variety of different methods;
- provide opportunities for international experiences linking campus faculty and students to a wide range of global locations through travel trips, student teaching, and cohort programs;
- assist workforce development initiatives through non-credit educational opportunities for employed adults in educational and governmental environments;
- coordinate professional conferences for the educational community, including school professionals and administrators, educational associations, and state organizations; and
- offer a wide array of community development and cultural enrichment opportunities.

School of Applied Health and Educational Psychology
Steve Harrist, PhD—Associate Professor and Interim School Head

The School of Applied Health and Educational Psychology encompasses undergraduate and graduate academic programs in athletic training, health education and promotion, physical education, leisure studies, community counseling, counseling psychology, educational psychology, school counseling, school psychology, and health and human performance. The School seeks to fulfill the traditional functions of teaching, research, outreach, and public service that are consistent with the mission of Oklahoma State University. The mission is to foster the development, integration, and application of empirical knowledge, theory, skills and experiences to promote social, physical, psychological, educational, and environmental health. Consistent with the goals of the University’s Professional Education Council’s Core Concepts and Goals Statement, faculty strives to demonstrate and perpetuate teaching based on theory and research-driven educational practices.

Course Prefixes. Courses that support educational psychology and school psychology and gifted education are listed in the Catalog under the EPSY prefix. Courses that support counseling and counseling psychology are listed in the Catalog under the CPSY prefix. Undergraduate programs in Recreation Management and Therapeutic Recreation use the RMTR prefix while activity and graduate leisure courses use the LEIS prefix. Courses in health and human performance are listed in the Catalog under the HHP prefix. Courses in physical education, health education and promotion, and athletic training also carry the HHP prefix.

Degree Opportunities. A student may earn a degree of Bachelor of Science (BS), Master of Science (MS), Specialist in Education (EdS), or Doctor of Philosophy (PhD) with emphasis in one of the following:

Programs/Areas of Emphasis

<table>
<thead>
<tr>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling/Counseling Psychology</td>
</tr>
<tr>
<td>Community Counseling</td>
</tr>
<tr>
<td>School Counseling</td>
</tr>
<tr>
<td>Counseling Psychology</td>
</tr>
<tr>
<td>Educational Psychology</td>
</tr>
<tr>
<td>Educational Psychology</td>
</tr>
<tr>
<td>School Psychology</td>
</tr>
<tr>
<td>School Psychology</td>
</tr>
<tr>
<td>Health and Human Performance</td>
</tr>
<tr>
<td>Health Education and Promotion</td>
</tr>
<tr>
<td>Physical Education</td>
</tr>
<tr>
<td>Applied Exercise Science</td>
</tr>
<tr>
<td>Athletic Training</td>
</tr>
<tr>
<td>Leisure Studies</td>
</tr>
<tr>
<td>Recreation Management</td>
</tr>
<tr>
<td>Therapeutic Recreation</td>
</tr>
<tr>
<td>Leisure Studies</td>
</tr>
<tr>
<td>Health, Leisure &amp; Human Performance</td>
</tr>
</tbody>
</table>

Counseling and Counseling Psychology
Carrie Winterowd, PhD—Professor and Coordinator

The counseling and counseling psychology program areas offer graduate programs in community counseling and school counseling leading to the MS degree in counseling as well as a PhD degree in educational psychology, with an option in counseling psychology.

Community Counseling
Hugh Crethar, PhD—Associate Professor and Program Director

MS Program. This program is intended for individuals who wish to serve as professional counselors in a variety of human service and community mental health agencies. Students may choose elective courses in selected areas of specialization such as youth counseling, substance abuse counseling and mental health counseling. The program is designed to meet the academic requirement for licensure as a professional counselor in Oklahoma and the standards set by CACREP for national accreditation. Application materials for this program are due February 1st for the following summer or fall enrollment.

School Counseling
Hugh Crethar, PhD—Associate Professor and Program Director

MS Program. This program prepares students to work as counselors in public schools, serving students, teachers and parents. The role of the school counselor is to coordinate the comprehensive school counseling program, focusing on the educational, career, personal and social development of students. Within this comprehensive school counseling program, school counselors provide counseling, consulting, coordinating, and appraisal services. The school counseling program is designed to meet the certification requirements for the State of Oklahoma as well as requirements of the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Application materials for this program are due February 1st for the following summer or fall enrollment.

Counseling Psychology
Julie M. Koch, PhD—Assistant Professor and Training Director

PhD Program. This program is accredited by the American Psychological Association and is based on the scientist-practitioner model of training. The program is designed to prepare students for counseling, consulting, teaching and research roles in various settings such as university counseling centers, academic departments, hospitals, public service settings such as prisons and Veterans Administration Medical Centers, business settings, mental health clinics, and community settings. Students are required to follow a specified sequence of study in which academic course work and practicum experiences are integrated. Students must also complete one year of full-time internship. Application materials for the counseling psychology program are due by December 1st for the following summer or fall enrollment.
Educational Psychology
Yoonjung Cho, PhD—Associate Professor and Coordinator

MS Program. A master's degree in educational psychology is available as an option within the MS in educational psychology. Educational psychology emphasizes the application of psychological theory and research in the field of education. Every educational psychology master's student takes basic courses in educational psychology and research. Each student also takes two additional courses in an emphasis area of developmental/instructional psychology or gifted and talented education. education.okstate.edu/index.php/educational-psychology-ms.

PhD Program. The PhD in educational psychology includes areas of study in learning motivation cognition, instructional psychology, human development, and education of the gifted. The programs prepare students for the role of teacher and researcher in educational and non-educational settings such as higher education, business, government, and communities. The educational psychology PhD program is designed to provide students with maximum opportunity to individualize their programs according to their own interests, needs and professional goals. Applications for the PhD program in educational psychology are due by February 1 for the following fall enrollment. education.okstate.edu/index.php/educational-psychology-phd.

School Psychology
Brian Poncy, PhD—Associate Professor, Coordinator and EdS Program Training Director

MS Program. A degree in educational psychology with an option in school psychometrics is awarded to students who are en route for either the EdS or PhD degree in school psychology. Students must be admitted to the EdS or PhD program to receive the MS. (Students are not admitted directly to the MS degree.)

EdS Program. The NASP-approved (National Association of School Psychologists) specialist program is available. The EdS is the appropriate level of training for those who are interested in applying psychology to a variety of child-related learning and adjustment problems, and for the improvement of children's mental health in school settings. Specialist-level school psychologists typically work in school systems and functions in diverse roles including consultation, psychological and psycho-educational assessment, and intervention to facilitate success for all children. The EdS program at OSU is approximately 77 hours, consistent with the NASP standards for training, and meets the Oklahoma State Department of Education certification requirements. Successful completion of this program leads to eligibility for certification by the Oklahoma State Department of Education as a school psychologist and also meets the Oklahoma State Department of Education certification requirements. Approximately 77 hours, consistent with the NASP standards for training, and meets the Oklahoma State Department of Education certification requirements. Successful completion of this program leads to eligibility for certification by the Oklahoma State Department of Education as a school psychologist and also meets the NASP National Certification in School Psychology (NCSP). Applications for the EdS program are due March 1 for consideration for admission the following semester.

Gary Duhan, PhD—Professor and PhD Program Training Director

PhD Program. The doctoral program in school psychology is accredited by the American Psychological Association and approved by the National Association of School Psychologists. The program follows a scientist-practitioner model that emphasizes the application of the scientific knowledge and methodological rigor in the delivery of school psychological services and in conducting research. Training in the scientist/practitioner is for the purpose of developing a Scientist of Child/Learner Success orientation in students. Doctoral level school psychologists function in diverse and important roles including consultation, assessment, intervention therapy, supervision, program evaluation, and research to facilitate success for all learners. They add to the understanding of children and their families by contributing to the scientific knowledge base related to all aspects of child development. They are employed in many different settings including elementary and secondary schools, private practice, university, hospitals and mental health centers. School psychologists work with diverse populations and provide psychological services to children, youth, families, caregivers, school personnel, adult learners, and individuals with special needs, as well as to the systems in which these individuals need to be successful. Applications for the PhD program in school psychology are due by February 1 for the following fall enrollment.

Health and Human Performance
Arcik Warren, EdD, ATC, LAT, CSCS—Associate Professor and Coordinator

The programs in health and human performance prepare students at the undergraduate level for careers in athletic training, health promotion, and physical education.

Health Education and Promotion
Bridget Miller, PhD—Joan Donelson Jacques Endowed Professor of Health Promotion and Program Coordinator

The health education and promotion program prepares students to provide preventive and rehabilitative services in a variety of settings including worksites, health care facilities, community agencies, schools/universities, and governmental agencies. Students culminate their degree requirements with a semester-long internship during their final semester. This degree track prepares students for credentialing opportunities such as the Certified Health Education Specialists and certifications offered through the American College of Sports Medicine.

Physical Education
Patricia Hughes, PhD—Associate Professor and Program Coordinator

The undergraduate program includes a curriculum designed for professional preparation as a certified teacher of physical education, PK-12. Core courses for all physical education students include science-based courses, teaching methods, health and content-specific courses. Students engage in two formative field-based experiences (1) a 45-hour practicum consisting of on-site observational experiences in one or more public school settings; and (2) a clinical experience (student teaching) in elementary and secondary schools during the final semester. A minor in Coaching Science is also offered, for which a student does not need to be a Physical Education major.

Graduate Program
Doug Smith, PhD—Associate Professor and Graduate Coordinator

MS in Health and Human Performance. The health and human performance program provides preparation at the master's level with three option choices: health promotion, applied exercise science, and athletic training.

PhD in Health, Leisure and Human Performance. The purpose and focus of this program is to prepare doctoral level research scholars for formal and informal learning organizations. They may serve in such roles as faculty members at colleges and universities and scholar practitioners in the workplace. The options included in the degree program help students to develop experiences that will allow them to meet career needs and goals through (1) interactive, collaborative research, (2) teaching experience, (3) university and professional service, and (4) outreach and extension appropriate to a land-grant university. The options in (1) health and human performance and (2) leisure studies are designed to permit flexibility within the disciplines encompassed by the degree while assuring that all students in the program are provided the opportunity to develop research skills which facilitate functioning as future faculty members or scholar practitioners.

Recreation Management and Therapeutic Recreation (Undergraduate Program)
Leisure Studies (Graduate Program)
Tim Passmore, EdD, CTRS/L—Associate Professor and Program Coordinator

The program in leisure studies at Oklahoma State University prepares students at the undergraduate and graduate levels for careers in recreation management and therapeutic recreation. Both undergraduate options are accredited by the Council on Accreditation for Parks, Recreation, Tourism and Related Professions, sponsored by the National Recreation and Park Association (NRPA). Students completing the programs are eligible to sit for respective national certification examinations. Leisure services management prepares students for employment in a variety of settings such as municipal, commercial, and corporate recreation; state and national park services; YMCA's and YWCAs; and armed services recreation. Therapeutic recreation prepares students to work with persons with disabilities in a variety of settings including hospitals, rehabilitation centers, day programs, institutions and within the community. Leisure services management prepares students for employment in a variety of settings such as municipal, commercial, and corporate recreation; state and national park services; YMCA's and YWCAs; and armed services recreation. Therapeutic recreation prepares students to work with persons with disabilities in a variety of settings including hospitals, rehabilitation centers, day programs, institutions and within the community.

Graduate Programs
Tim Passmore, EdD, CTRS/L—Associate Professor and Program Coordinator

Master of Science in Leisure Studies. Beyond the baccalaureate level, the program in leisure studies provides preparation at the master's level across the discipline. Students develop a plan of study, under the advisement of a graduate
committee and may focus on various emphasis areas in recreation, parks and leisure services. Graduates of the major's degree are typically employed in management and administrative positions in a wide variety of recreation, parks, and leisure service settings. These include areas such as campus recreation, municipal parks and recreation, military recreation, directorships of therapeutic recreation units in clinical settings, YMCA's, state parks, and others. The major’s degree is 36 credit hours beyond the bachelor's degree and many graduate assistantships are available for qualified students.

PhD in Health, Leisure and Human Performance, with an option in Leisure Studies. Students seeking the terminal degree in Leisure Studies engage in the PhD in HLHP. Those completing this program are well prepared for entry-level positions as faculty members in a wide range of colleges and universities. To facilitate student readiness to work in academia, doctoral students work closely with faculty, engage in course work and examinations, and participate in opportunities for experiences in teaching, scholarship, and service. Core learning experiences include an understanding of curriculum, applied ethics, and administration as well as developing an understanding of the common tripartite mission of most universities - scholarship, teaching, and service. The PhD requires 60 hours of course work beyond the master's degree; many graduate assistantships are available for qualified students.

School of Teaching and Curriculum Leadership
Pam Brown, EdD—Professor and School Head
The School of Teaching and Curriculum Leadership prepares educational professionals to work with diverse populations in various settings. As a community of scholars, we generate knowledge, promote learning and understanding, and foster personal and professional growth through teaching, research, service, and outreach. Programs in the School of Teaching and Curriculum Leadership include curriculum studies, elementary education, secondary education, literacy education, occupational/workforce education, and special education. Consistent with the University’s Professional Education Unit conceptual framework, all programs leading to teacher certification at both initial and advanced levels incorporate the L.E.A.D.S. framework based on leadership, ethics and professionalism, academic and professional roles, diversity, and service orientation/community outreach. Graduate program goals in STCL focus on the concepts of agency, pedagogy, diversity, and research.

Course Prefixes. Most courses in STCL programs carry the CIED (Curriculum and Instruction) prefix. Other course prefixes include SPED (special education), OCED (occupational education), CTED (career and technical education) and SMED (Science/Mathematics Education).

Degree Opportunities. Degrees offered through STCL programs include Bachelor of Science (BS), Master of Science (MS), and Doctor of Philosophy (PhD).

Bachelor of Science degrees and options include:
- Career and Technical Education (CTED)
- Business and Information Technology Education
- Health Occupations Education
- Marketing Education
- CTED (certification)
- CTED (non-certification)
- Technology Education
- Elementary Education
- Secondary Education
- English Education
- Foreign Language Education (PK-12)
- Social Studies Education
- Master of Science in Teaching, Learning, and Leadership (options and emphasis areas) include:
  - Curriculum and Leadership Studies
  - Elementary/Middle/Secondary/PK-12
  - Elementary and Middle Level
  - Secondary
  - Initial Certificate in Elementary Education
  - Math/Science
  - Mathematics Education
  - Science Education
  - Integrated Math/Science Education
  - Occupational Education (OCED)
  - OCED Teaching
  - OCED Administration
  - OCED Pre-Engineering Education
  - Reading/Literacy
  - Special Education
  - Literacy
  - Secondary Education for Teachers Non-Traditionally Certified or Seeking Initial Certificate
  - Initial Certification in Art (PK-12), English, Foreign Language (PK-12), Math, Science, or Social Studies
  - Doctor of Philosophy in Education (options and emphasis areas): Curriculum Studies

College Teaching
- Educational Technology
- Occupational Education
- Professional Education Studies
- Arts and Humanities
- Literacy
- Mathematics and Science
- Social Foundations of Education

*Options housed in the School of Educational Studies

Undergraduate Programs
Juliana Utley, PhD—Associate Professor and Elementary Education Coordinator
Gayla Foster, PhD—Visiting Assistant Professor, Secondary Education Coordinator
The School offers undergraduate degrees in elementary, secondary, and P-12 education, and career and technical education.

The Bachelor of Science in Elementary Education degree qualifies the student for an Oklahoma elementary teaching certificate (grades 1-8). The program is intended to provide students with 1) a breadth of knowledge reflecting the broad traditions of general education, and 2) a depth of knowledge in the area of specialization. The degree includes four field experiences, culminating in a full-semester clinical internship, through which students work in diverse school settings and demonstrate and strengthen their pedagogical knowledge. This degree is offered on both the Stillwater and Tulsa campuses, and Tulsa students have an opportunity to participate in the Urban Education Program, a cooperative effort between OSU and Tulsa Public Schools. Stillwater students can apply to the ExCEL program, providing site-based course work in one of these Stillwater elementary schools for the final two semesters of enrollment. The culminating clinical internship placement opportunities include placement throughout the Urban Education Program, placement in accredited schools in Stillwater and the surrounding area, or international placement. All students complete a Professional Portfolio with three separate submissions. It should be noted that all previous course work must be successfully completed prior to participation in the final two semesters. Oklahoma certification also mandates the Certification Examinations for Oklahoma Educators.

The Bachelor of Science in Secondary or K-12 Education degree is designed to prepare teacher candidates who are life-long learners, emerging professionals, and subject matter specialists with strong liberal arts backgrounds. Each secondary/K-12 degree and certification program includes general education courses, extensive specialization course work in the discipline area, and professional education courses accompanied by school-based field experiences. Tulsa area students have an opportunity to participate in the Urban Education Program, a cooperative effort between OSU and Tulsa Public Schools. Degree options leading to certification for teaching grades 6-12 are English, mathematics, science, and social studies. The foreign language option leads to certification in grades K-12. Secondary or K-12 certification options (with degrees from the College of Arts and Sciences) are available in art, English, foreign language, and social studies. Students complete a Professional Portfolio with three separate submissions. Oklahoma certification also mandates the Certification Examinations for Oklahoma Educators. Teaching certification in secondary mathematics or science may be earned through the OSU Teach program, with degrees housed in the College of Arts and Sciences.

The Bachelor of Science in Career and Technical Education (CTED) is designed with two distinct options: the non-certification option, for students interested in adult technical education, and the certification option for students interested in secondary career and technical education.

CTED Non-certification Option. Students choosing the non-certification option are prepared to become instructional personnel for technical programs in community colleges, technical institutes and industry. Graduates with this option also accept technical employment of various types in business, industry and government.

The non-certification option is designed primarily for graduates of technical programs in technical institutes and community colleges. Qualified students from pre-professional programs can be accepted with advanced standing. In addition, students desiring to prepare for careers in technical education may enter the program directly from high school and complete their technical major requirements at OSU.

CTED Certification Option. Candidates selecting this option are prepared to serve as teachers, or in other related professional roles for career and technical education programs. Plans of study leading to the bachelor’s degree are offered for those wishing to qualify for teaching under the approved state plan for career and technical education. Candidates completing this option are qualified to teach in career and technical departments of high schools and area career and technology centers.

The certification options include business information technology, marketing education, health occupations education, technology education, and technical and industrial education. The specializations in technical and industrial education are selected from but not limited to the trade and industrial fields of air conditioning heating and refrigeration, automotive technology, aviation technology, building and grounds maintenance, carpentry, commercial art, commercial photography, computer repair technology, cosmetics, diesel engine technology, drafting, electronics, laboratory technology, law enforcement
training, machining, masonry, printing, plumbing, telecommunications, and welding technology. For the technical and industrial option, specific field is determined by the specialization proficiency and teaching aspirations of the student. Since specialization competency normally is required for admission, students accepted into this option are required to meet the general and special requirements of the program faculty. The required specialization competency may be acquired by completing a career and technology program in an approved high school, area vocational school, technical college, community junior college, by apprenticeship training, by actual experience in the field of specialization, or by a combination of these. See the section “Professional Education Unit” for specific requirements regarding state certification requirements and procedures.

Graduate Programs

The School offers graduate degree programs at the master's and doctoral levels. While specialization is required, maximum program flexibility enables students to meet individual educational needs. The degree program is also designed to prepare persons to enter public or private elementary and secondary schools as curriculum directors, department heads, reading specialists and instructional team leaders or enter other educational institutions and community agencies as educational leaders. Doctoral programs provide preparation for university teaching and research, as well as for P-12 roles, such as curriculum administrators.

Programs in the School offer the Master of Science (MS) in Teaching, Learning, and Leadership, and a Doctor of Philosophy (PhD) in Education.

Master of Science in Teaching, Learning and Leadership (TLL)

A student may earn the degree of Master of Science (MS) in Teaching, Learning, and Leadership. Students specialize in several areas highlighted below as TLL options. All options include at least one research course. Students planning for teaching must satisfy an emphasis in K-12, secondary education, or math/science education may incorporate graduate course work from an academic discipline. The master's degree program is also frequently designed to qualify graduates for certification in a specific area.

The Curriculum and Leadership Studies option provides a sound foundation in curriculum knowledge including the social, philosophical, ethical, political, historical, and psychological aspects of curriculum, curriculum planning, pedagogy, and curriculum leadership. The degree program will deepen one's knowledge of communication to create a coherent elementary education (grades 1-8). This initial certification plan includes a semester-long clinical internship in the schools, preparation of a professional portfolio as required by the state, and mandated Teacher Certification Examinations.

The Math/Science Education option provides extended course work in both content area and pedagogy, as students take courses in math or science, while completing additional math or science courses through the College of Arts and Sciences. The option also includes course work integrating math and science pedagogy so that graduates will be skilled in content integration between the two areas. The option is designed to prepare teachers for on-line, public or private elementary and secondary schools as curriculum directors, department heads, reading specialists and instructional team leaders or enter other educational institutions and community agencies as educational leaders. Doctoral programs provide preparation for university teaching and research, as well as for P-12 roles, such as curriculum administrators.

The Elementary, Middle, Secondary, or K-12 option (EMSK12) provides choices for students to include course work to enhance their understanding of teaching and learning at their chosen level, and in the case of secondary or K-12 to include content area course work. This option also includes a plan designed for students seeking initial certification in elementary education (grades 1-8). This initial certification plan includes a semester-long clinical internship in the schools, preparation of a professional portfolio as required by the state, and mandated Teacher Certification Examinations.

The Reading and Literacy option provides students with experiences to develop knowledge of comprehensive, P-12 literacy curriculum and instruction including regular and intensive reading instruction, literacy assessment and evaluation, language arts/writing instruction, and the roles of children's literature. The program also supports candidates' development in the areas of education theory and research, curriculum design, creating literate environments, appreciating and including diverse learners, and preparing quality professional development as program administrators or literacy coaches. Students who complete the Reading Specialist requirements can be recommended to the Oklahoma State Department of Education for P-12 Reading Specialist certification.

The Secondary Education for Teachers Non-Traditionally Certified option is designed for undergraduate students in content areas who would like to obtain a teaching certificate or those who are already teaching after completing an alternative path to certification. Admitted students include those wishing to follow a traditional path to teacher certification combining courses in pedagogy and teaching methods together with required Teacher Certification Examinations in order to gain OSU recommendation for certification. Admitted students seeking initial certification who are not already teaching will carry out several field placements including a semester-long clinical internship in a school and prepare a professional portfolio in compliance with state requirements for traditional teaching certificate.

The Special Education option is designed to prepare educators to work effectively with children and youth with mild to moderate disabilities. The option encompasses two primary pathways: Advanced Educator and Initial Certification. The option is also delivered in a “bootcamp” format on the Tulsa campus with new cohort groups admitted to a set sequence of classes designed for degree completion in four semesters. Classes are scheduled during evenings and weekends and can be taken on a part-time or full-time basis. Classes utilize a variety of instructional formats including face-to-face classroom interaction, compressed video, and hybrid design, where instruction includes both classroom interaction and online learning. To be eligible for state certification, students must pass Teacher Certification Examinations.

Doctor of Philosophy in Education

Students in the Doctor of Philosophy in Education program critically analyze teaching and learning in different contexts both inside and outside of school, explore how these processes are embedded in wider social, political and economic contexts, and envision the possibilities for improving teaching and learning. To this end, the program has an emphasis on the critical production of research that advances its goals in the development of their scholarly fields while addressing the needs of the state of Oklahoma, the country and the larger global community. The integration of five degree options—Curriculum Studies, Educational Technology, Occupational Education Studies, Professional Education Studies, and Social Foundations of Schooling provides a conceptually coherent doctoral program in which students and faculty explore teaching and learning in new ways within various cultural milieus, such as the family, occupations, public schools, and universities. The Ph.D. degree, with options housed in two Schools within the College of Education, is intended for individuals seeking employment in higher education, common schools, and other educational settings (such as museums, educational publishing, and curriculum development).

The Curriculum Studies option has as its mission to educate scholars with a deep understanding and ability to create and use knowledge of curriculum studies in the field of education and in other scholarly communities interested in the advancement of education at the state, national, and international levels. In articulating the field of curriculum studies, it is important to acknowledge the broadest views of curriculum, including content and organization of school, the social context in which school is situated, and the process of education both in and out of school. Curriculum studies is understood as both a disciplinary and an interdisciplinary field of study with its own distinctive history, conceptions, and modes of inquiry, always open to new scholarship. Curriculum theorizing, curriculum development and assessment, pedagogy, curriculum inquiry, curriculum history, leadership and advocacy, critical media literacy, teacher research, and intercultural and international dialogue are all part of the scholarship of curriculum studies. The program particularly prepares individuals who are also devoted to those absent from typical curriculum decision making; curriculum studies is concerned with issues of equity, access, and voice. This option is housed in the School of Teaching and Curriculum Leadership.

The Educational Technology option is designed to facilitate educators in becoming highly qualified educational technologists and school library media specialists. Our focus on instructional design, information management, and multimedia design and development along with core technology integration enables candidates to serve either P-12 schools, higher education, or corporate settings in effective and fulfilling ways. This option is housed in the School of Educational Studies.

The Occupational Education Studies option is intended to strengthen research activities for improving practice in occupational education, provide graduate programs that reflect transformative roles in occupational education and the workplace, strengthen leadership and outreach service, expand activities in international workforce development, and strengthen the cultural diversity in the field of occupational education studies. The focus is to prepare persons for leadership positions in higher education; international occupational education and workforce development organizations; national, state, and community agencies; as well as public and private educational institutions. This option is housed in the School of Teaching and Curriculum Leadership.

The Professional Education Studies option includes areas of specialization in English Language Arts, Humanities, foreign language, fine arts, special education, bilingual education, mathematics, social studies, literacy, and mathematics and science. The option is designed to meet the needs of educators who are already teaching and who seek advanced preparation in their field. The program is also designed for individuals who wish to strengthen their understanding of educational theory and research who advance knowledge fundamental to teaching and learning, and who will engage in a diverse and global society and fundamental to social justice and equity in education. Diverse perspectives include but are not limited to in-depth study of theories used to advance social justice and equity in education, teaching, and learning; analyses of diverse teaching and learning contexts; application of inquiry-based teaching-learning theory; use of research
methodologies (qualitative, quantitative, mixed methods, and conceptual/ theoretical methodologies) for studies in education; and conceptualization and reconceptualization of the meaning and value of social justice and equity in education, teaching, learning, and teaching-learning contexts. This option is housed in the School of Teaching and Curriculum Leadership.

The Social Foundations option is intended to prepare future scholars and educators to employ a number of different disciplinary perspectives to analyze critically and evaluate policies and practices within and outside education to understand better how such policies and practices shape educational institutions. This approach is intended to heighten students' abilities to examine, understand, and explain educational arrangements, processes, and practices to develop a disciplined sense of policy-oriented educational responsibility. Scholars in social foundations are expected to contribute to advancing the educational enterprise nationally and internationally. This option is housed in the School of Educational Studies.

General Program Requirements, Application Procedures and Financial Aid

Master's Program. TLL master's degree options require 36 hours of course work. Students take a comprehensive exam and complete either a Creative Component or Thesis. The Creative Component can take a variety of forms from an advanced paper to a creative demonstration of expertise gained through the degree. The thesis is original research. The student’s Advisory Committee (three members) assists the student through all aspects of the program. Application to the Graduate College precedes program admission decisions. For unqualified admission an applicant must have completed an undergraduate degree in Education or a related field and must submit a curriculum vitae and goals statement aligned with the option area chosen. Option areas have minimum grade point requirements for the undergraduate degree and may have additional materials that make up the admissions packet.

Doctoral Program. The Doctor of Philosophy (PhD) degree requires a minimum of 60 semester hours beyond the master’s degree. Application to the Graduate College precedes program admission decisions. For program admission, candidates submit scores from the Graduate Record Exam or the Miller Analogies Test, a Statement of Goals and Objectives, references, and examples of written expression. An interview may be required.

Financial Aid. Some support is available each year for research assistantships and for qualified graduate students to assume teaching responsibilities in the undergraduate curriculum. Interested persons are encouraged to apply at any time. Applications can be obtained from the School of Teaching and Curriculum Leadership.

School of Educational Studies

Jesse Mender, Ph.D.—Associate Professor and School Head
Katye Perry, Ph.D.—Associate Professor and Associate School Head

The School of Educational Studies offers degrees or options in the following areas: aviation and space, school administration, higher education, college student development, research and evaluation, curriculum and instruction and educational technology. These areas of emphasis combine research, inquiry and educational practices to create teaching professionals in areas foundational to thought and practice in a wide variety of professional roles associated with business, educational and industrial settings. Consistent with the goals of OSU’s Professional Education Council’s Core Concepts and Goals Statement, faculty strives to demonstrate and perpetuate teaching that is based on theory and research-driven educational practices.

We provide specialized training at the undergraduate and graduate levels yet permit flexibility to enable students to meet individualized goals. General information about undergraduate degrees may be found under the “University Academic Regulations” section of the Catalog. Additional general information about graduate degrees may be found in the “Master’s Degree,” “Doctor of Education,” or “Doctor of Philosophy” areas of the “Graduate College” section of the Catalog.

Financial support is available for research assistantships and for qualified graduate students to assume teaching responsibilities under faculty supervision. Selections for assistantships are usually made in the spring semester for the following academic year. However, interested individuals are encouraged to apply at any time. Applications can be obtained from the School.

Aviation and Space Education

Chad Depperschmidt, EdD—Assistant Professor and Undergraduate Program Coordinator
Timm Bliss, EdD—Professor and Graduate Program Coordinator

The Aviation and Space Program prepares students for careers in the aerospace industry. The BS in Aerospace Administration and Operations degree program offers five options: Professional Pilot, Aviation Management, Technical Services Management, Aerospace Security, and Aerospace Logistics. The Professional Pilot option prepares students for careers in flight operations in both the general aviation and the air carrier segments of the aviation industry.

In addition to high quality aviation related coursework, the student will attain FAA certifications for Private Pilot, Commercial Pilot-Instrument Rated for both single-engine and multi-engine aircraft and Certified Flight Instructor. The Professional Pilot option is compliant with Title 14 CFR of the Code of Federal Regulations Part 141 and accredited by Aviation Accreditation Board International (AABI).

The Aviation Management option prepares students for management positions in the aerospace industry. Employment opportunities include positions with fixed-base operators, air carriers, corporate flight departments, commuter and taxi operations, and executive development, administration of aviation institutions, aviation manufacturing, maintenance and government aviation and aerospace organizations. The Aviation Management option is accredited by Aviation Accreditation Board International (AABI).

The Technical Services Management option builds on an individual’s technical expertise in aircraft maintenance or avionics to prepare the student for management positions in all segments of the industry. Twenty-five hours of technical training may be credited toward this option if received from an accredited institution.

The Aerospace Security option prepares students for careers in aerospace security fields. Employment opportunities include government agencies and private industry that deal with aerospace security operations.

The Aerospace Logistics option prepares students to work in the aerospace logistics sector. Employment opportunities include positions with military and civilian maintenance, repair and overhaul (MRO) facilities worldwide as well as any aerospace organization involved in supply-chain management activities.

The Aviation and Space Program has an extensive industry-based management internship program established with aerospace industries, major and regional air carriers and a variety of other companies within the aerospace industry. OSU is an educator member of the Aviation Accreditation Board International (AABI). The AVED Program is also an institutional member of University Aviation Association (UAA).

Graduate Degree Requirements

Aerospace Security Certificate. The Aerospace Security Certificate prepares students for careers in aerospace security fields. Employment opportunities include governmental agencies and private industry that deal with aerospace security operations. To be considered for admission to the Aerospace Security Graduate Certificate students must be admitted to both the Graduate College and the AVED program. Students who want to pursue their AVED Master’s must also make application to the AVED Master’s degree.

MS Degree Program. The Master of Science in Aviation and Space degree emphasizes aviation/aerospace management and leadership, legal and regulatory issues, aviation finance and economics, labor relations in aviation/ aerospace, issues in the airline industry, and additional content regarding the aviation/aerospace industry and related government programs and missions. Students participating in this program come from a variety of academic and/or professional backgrounds including aviation, military, and government. The scope of this degree program is designed to prepare professional leaders for positions in the aviation/aerospace industry. To be considered for admission to the master's program, students must be admitted to both the OSU graduate college and the AVED program. Applicants are required to submit a statement of personal goals and objectives, two letters of recommendation addressing the applicant's abilities, interest, motivation, etc., and a current resume. All MS students must complete course work from research, core requirements, program electives and elective courses to total 33 hours. At least 21 hours must be completed at the graduate level (5000 or above) and no pass/fail courses may be used. Master’s students must also complete a Creative Component for committee approval.

EdD Degree Program. The Doctor of Education (EdD) in Applied Educational Studies with the Aviation and Space Education emphasizes aviation leadership and executive development, administration of aviation institutions, aviation law, air carrier industry, international aviation issues, and applied aviation and space research. The Space portion emphasizes the development of air and space flight and the earth’s air, land and water systems; and the solar system’s systems to include the sun, planets, and probes. Aviation & Space Program seeks doctoral candidates with strong intellects, proper educational preparation, breadth and depth of Aviation & Space experiences and the capacity for disciplined investigative work. The Aviation and Space program provides advanced coursework in the specific field of aviation and space for successful practice in the aerospace industry. Applicants should have at least three full years of work experience in the aerospace industry, government, and/or higher education area(s). Either the TOEFL or GRE test must be taken within five years prior to application to the program. All applicants are required to submit a statement of personal goals and objectives, two letters of recommendation addressing the applicant's experiences, abilities, interest, motivation, etc., and a current resume vita. Coursework must be completed in the professional core, program emphasis, field experiences, and research in addition to 10 hours of Doctoral Dissertation, for a total of 60 hours of course work beyond the Master’s degree. The EdD degree requires a dissertation that is research-based in the field of specialization of the practitioner-student. Basic principles are used to emphasize the practical application of research.
The mission of the Aviation and Space program has three essential components:

1. Cultivate exemplary undergraduate and graduate instruction through a professional atmosphere in which students learn, develop, promote integrity, and contribute to the broader aerospace community.

2. Engage in applied aerospace research and scholarly initiatives that benefit industry, general aviation, government, and the public.

3. Provide leadership, expertise, and professional development opportunities for aviation and aerospace professionals and the aerospace industry and to promote a greater understanding of aerospace among the general public.

OSU NASA Education Projects. The faculty in the Aviation and Space Program are the principal investigators for five NASA education projects and work in partnership with Texas A & M University to deliver an additional NASA education project.

1. NASA Teaching From Space Project (TFSP). The NASA TFSP provides opportunities for K-12 students and educators to become involved with real NASA missions and research, gain access to NASA experts, and use NASA equipment. In addition to unique hands-on activities that sometimes include real time interaction with astronauts onboard the ISS, TFSP offers electronic resources on a variety of topics such as rocketry, robotics, spacesuits, and living and working in space.

2. The NASA Digital Learning Network (DLN). The NASA DLN supports K-12 students and educators with interactive, specialized education video-conferences to support science, technology, engineering and mathematics instruction.

3. NASA Johnson Space Center Strategic Education Alliances (JSC SEA). The JSC SEA project provides opportunities for educators from Texas and across the nation to directly engage with NASA missions and research. OSU in partnership with Texas A&M University, encourages students to consider careers in science, technology, engineering, and mathematics (STEM) by implementing various educational projects that utilize NASA’s unique capabilities, facilities and expertise including the Pre-Service Teacher Institute, Middle School Aerospace Scholars, High School Aerospace Scholars, Women in STEM, High School Aerospace Scholars, Community College Aerospace Scholars, National Community College Aerospace Scholars, and the Reduced Gravity Educational Flight Projects.

Additional information can be found at the FLYOSU.okstate.edu website.

Educational Leadership

Bermita Krumm, Ph.D.—Program Coordinator (School Administration)
Tami Moore, Ph.D.—Program Coordinator (Higher Education Administration and College Student Development)

Educational leadership emphasizes three areas: School Administration, Higher Education, and College Student Development. The PhD in Educational Leadership and Policy Studies is offered with options in Higher Education Administration and Educational Technology; the Doctorate in Education (EdD) is offered in School Administration. The Master of Science degree is offered with options in Higher Education Administration—a 36-hour program that prepares individuals for leadership positions in post-secondary institutions; School Administration—a 36-hour program designed for those who aspire to the principalship, and College Student Development—a 42-hour program that prepares individuals for positions in service delivery areas of student affairs. Admissions to the graduate programs in Educational Leadership is competitive and based upon multiple factors.

Three degrees are offered with a specialization in School Administration:

• M.S. in Educational Leadership with a specialization in School Administration: To be considered for admission to the M.S. program in School Administration, applicants are expected to have an earned baccalaureate degree with at least a 3.00 GPA (on a 4.00 scale), a minimum two years of teaching experience, and career goals that match the program. Applicants must provide appropriate recommendations (3), the required essays, and a recent Miller Analogies Test (MAT) or Graduate Record Exam (GRE) scores. Students currently enrolled in the program have an average MAT score of 57/410 or GRE scores of Verbal 149 (437) and Quantitative 145 (541). Applicants may be asked to complete an interview with program faculty. Applications to all EDLE master’s programs are accepted on a rolling basis. All materials must be received by the submission of all application materials; all materials must be received by the end of the semester.

• Ph.D. in Educational Leadership and Policy Studies/Educational Administration: Applicants for Ph.D. program in Educational Administration must provide a current academic vita/resume, a career objective essay, a critical issue essay, two examples of written work, and GRE (Graduate Record Exam) scores. The expected minimum scores are Verbal - 153, Quantitative - 149, and Writing - 4.5 for exams taken on or after Aug. 1, 2011. For exams taken prior to Aug. 1, 2011, expected minimum scores are Verbal - 500, Quantitative - 610, and Writing - 4.5. GRE scores must not be over five years old at the time of application review. Additionally, program faculty may request an interview with the applicant. The Ph.D. requires a one-year residency of at least nine hours for two semesters during coursework completion. Review of applications for doctoral programs will begin after March 15, the deadline for submission of all application materials; all materials must be received by the COE Graduate Studies office before the application deadline. Notification of decisions will follow soon thereafter.

Two degrees are offered with a specialization in Higher Education Administration:

• M.S. in Educational Leadership with a specialization in Higher Education. To be considered for admission to masters program with a specialization in Higher Education, applicants must provide a career objective essay, current academic vita or resume, a critical issue essay, appropriate recommendations, and GRE (Graduate Record Exam) scores. Students currently enrolled in the program have an average GRE score of Verbal - 153, Quantitative - 149, and Writing - 4.5 for exams taken on or after Aug. 1, 2011. For exams taken prior to Aug. 1, 2011, expected minimum scores are Verbal - 500, Quantitative - 610, and Writing - 4.5. GRE scores must not be over five years old at the time of application review. Additionally, the program faculty may request an interview with the applicant. The M.S. requires a one-year residency of at least nine hours for two semesters during coursework completion. All application material must be received by March 15; review of applications will begin soon after. Notification of decisions will follow soon thereafter.

More information about the Higher Education Administration program, course requirements, other pertinent information, and an electronic copy of the application packet, can be found at http://hied.okstate.edu.

One degree is offered with a specialization in College Student Development:

• M.S. in Educational Leadership with a specialization in College Student Development: To be considered for admission to masters program with a specialization in College Student Development, applicants are expected to have an earned baccalaureate degree with at least a 3.00 GPA (on a 4.00 scale) and career goals that match program learning objectives. Applicants must provide a personal statement, current resume or academic vita, appropriate recommendations, and a recent Graduate Record Exam (GRE) or Miller’s Analogies Test (MAT) scores. Students currently enrolled in the program have an average MAT score of 57/410 or GRE scores of Verbal 149 (437) and Quantitative 145 (541). Applicants may be asked to complete an interview with program faculty. Applications to all EDLE master’s programs are accepted on a rolling basis; however, for fullest consideration for graduate assistantships in the College Student Development program, please submit all materials by January 15. An applicant’s file will be reviewed when all materials have been uploaded to the online application system. Notification of the admission decision will follow before the beginning of the next semester.

Applications for all degree programs can be found on the COE Graduate Studies website at http://education.okstate.edu/graduate-studies

Educational Technology

Susan Stasberries, Ed.D—Associate Professor and Coordinator

The goal of the Educational Technology program is to facilitate educators in becoming highly qualified educational technologists and school library media specialists. Our focus on instructional design, information technology, and multimedia design and development along with core technology integration enables candidates to serve in a variety of settings in education, business, and industry. The program website, edtech.okstate.edu, offers greater detail.

The MS in Educational Technology is for students interested in furthering their knowledge, skills, and opportunities in the area of educational technology and

2014-2015 University Catalog
library media. This degree will enhance their marketability and, in the case of the School Library Media option, provide credentials necessary for recommendation for this particular area of teacher certification. In addition to the core focus on educational technology, candidates pursuing School Library Media certification will also be immersed in the areas of information literacy, curriculum leadership, and program administration. Meeting NCATE accreditation standards. To be considered for admission to the master’s program, applicants should have an earned baccalaureate degree with at least a 3.00 GPA (on a 4.00 scale), a professional goals statement and three letters of recommendation providing information related to their academic ability, potential for graduate study, and writing ability. Applications will be reviewed upon receipt of all materials.

The Graduate Certificate in Online Teaching offers students the opportunity to add pedagogical and technological skills to their existing content knowledge within a model online learning environment and emerge prepared to design, develop, deliver, and evaluate online learning in educational institutions.

For those seeking a doctoral level degree emphasizing educational technology, we offer the PhD in Education with an option in Educational Technology. The focus of the program is on the core areas of the field: design, development, utilization, production, and evaluation of instructional systems, human computer interaction, and technology applications to support learning and teaching.

The doctoral program emphasizes research using educational technology in applied settings. The PhD degree in Educational Technology prepares students for a variety of professional positions. Graduates are typically employed as university faculty, researchers, professional technologists in universities, community colleges, and schools or as training managers or instructional designer/developers in corporate settings. The PhD in Education degree requires a minimum of 69 credit hours beyond the master’s degree. Applicants must apply to the OSU Graduate College to include a recent score of the Graduate Record Exam or the Miller Analogos Test, a Statement of Goals and Objectives, references, and examples of scholarly writing. An interview may be requested.

The student association for this program is the Educational Media and Technology Student Association. The purpose of this group is to engage undergraduate and graduate students interested in this field in activities that will serve to enhance their academic experience through special speakers, service projects, and social activities.

The Educational Technology faculty is committed to involving students in a variety of experiences that will enhance their professional careers. Faculty work with students to present papers at national conferences and to submit manuscripts to professional journals. Students participate in Educational Technology courses, grant projects, and service and outreach to educational groups. Graduate assistantships in teaching and research are often available.

Each student has the opportunity to earn in rich internship and practicum experiences designed with the individual learner’s goals in mind.

**Educational Research and Evaluation**

Kate Perry, PhD—Associate Professor and Coordinator

The educational research and evaluation program offers the MS and PhD degrees. The MS program prepares students to function as staff members in research and evaluation units in school districts, governmental agencies, and private corporations and foundations. Graduates of the doctoral program are prepared to serve as college or university professors, directors of research and evaluation for public schools and universities, researchers for funded projects, state department of education consultants, and professional employees for test development and evaluation for public schools and universities, researchers for funded projects, state department of education consultants, and professional employees for test development and evaluation for public schools and universities.

Degree Requirements. The MS degree requires a minimum of 36 credit hours. There are three options: either 36 hours of course work plus a thesis (six thesis hours); the student’s advisory committee may recommend additional course work or thesis hours. Required courses include six hours in educational psychology and 24 hours in research and evaluation including a practicum. Students taking a non-thesis option must take additional courses from an approved list of electives. Masters students must take two qualifying examinations that cover the program core and the area of professional specialization.

The PhD degree requires a university determined minimum of 60 hours beyond the master’s degree or a minimum of 90 semester hours beyond the bachelor’s degree. The typical doctoral student completes nine hours of common core coursework in educational psychology and 15 hours of common core course work in integrated and extended inquiry; 18 hours of professional core course hours (e.g., psychometric theory, applied multivariate research), a minimum of nine hours in a cognate area defined by the student and committee chair (e.g., mathematical statistics, institutional research, student development), and at least 15 dissertation hours. Students also select two applied experiences from a list of suggested experiences with the assistance and approval of the committee chair. PhD students must take two qualifying examinations that cover the program core and the area of professional specialization.

**Admission Requirements.** For both the masters and PhD programs, admissions decisions are competitive and based on a combination of multiple criteria. Criteria for admission to the master’s program include an undergraduate GPA of at least 2.75; Miller Analogos Test (MAT) or Graduate Record Exam (GRE); 3 positive letters of reference (preferably from previous instructors or employers); and evidence of potential for professional development (e.g., proof of written work). For the doctoral program, admissions criteria include telephone or personal interview, GRE scores, undergraduate and master’s GPA, four positive letters of reference of which at least three are GRE or MAT master’s, GRE for doctoral, two official transcripts from each institution attended, Statement of Purpose, and the Graduate College application fee. International applicants must include TOEFL scores and a signed Confirmation of Resources form. Completed applications are reviewed as they are received.

**Social Foundations**

Guoping Zhao, PhD—Associate Professor and Coordinator

Social foundations of education are the interdisciplinary study of schooling and other forms of schooling and of education. Ever since it began during the 1930s at Teachers College of Columbia University, social foundations has brought together foundations of education scholars who situate education in historical, philosophical, economic, and social contexts. Using the tools of the humanities and the social sciences, social foundations scholars ask perennial questions, such as: What is the purpose of schooling in a democracy? What knowledge and values should be taught and to whose benefit? What are the issues of race, ethnicity, social class, gender and ability manifested in schools?

Drawing from history, philosophy, sociology, anthropology, international studies, and other disciplines to teach their courses, faculty in the social foundations program area ask that educators reflect critically on the social and cultural dynamics in educational settings and how policy and practices might be improved. Students from other human service professions and other disciplines are invited to make similar use of the content of these courses for their professional practice.

**Doctoral Program.** The mission of the PhD in Education with social foundations option is to educate scholar-researchers with the abilities to discover, integrate, and apply knowledge about the culture in which the institutions called school reside, as well as the culture the institution creates. In the broadest sense, social foundations option is intended to educate scholars so that they can disseminate new knowledge to the education, government, economic social and other scholarly communities interested in the advancement of the educational enterprise at the national and international levels.

To be considered for admission to the PhD program, applicants are expected to have an earned master’s degree with minimum GPA averages of 3.50 on a 4.00 scale, and have career goals that match the program. Applicants must provide appropriate recommendations (3), present either a Graduate Record Exam (GRE) or Miller Analogos Test (MAT) score. Preferred GRE scores are: Verbal-151, Quantitative-150, and Analytic Writing-4.5. For the MAT, a composite raw score of 400 is expected. How are GRE scores interpreted? A recent scholarly writing sample is also expected. For students with little or no background in social foundations, additional leveling courses may be required.

**Professional Education Unit**

Officers of the Professional Education Council

Pamela "Siss" Carroll, Ed.D—Dean and Director of Professional Education

Susan Stanberry, Ed.D—Associate Director of Professional Education

The College of Education coordinates all professional education programs offered at Oklahoma State University. All programs are operated in collaboration with the colleges of Agricultural Sciences and Natural Resources, Arts and Sciences, Human Sciences and the Graduate College. The dean of the College of Education serves as the director of the Professional Education Unit (PEU). The Professional Education Council has been established as the governance and oversight structure for the Professional Education Unit. The Unit has a mission statement, goals and a strategic plan that guide the operation of its programs.

Professional Education Unit Core Values. The underlying structure of the unit is articulated through its conceptual framework that guides the direction of programs, teaching practices, candidate performance, faculty scholarship, and service. The core values of the conceptual framework emphasize leadership, ethics and professionalism, and academic and professional roles, diversity, and service orientation/community outreach. (L.E.A.D.S.)

Leadership. PEU candidates who are committed to the belief that professional educators who provide quality education are the foundation of a prosperous and democratic society. Ethics and Professionalism. PEU prepares candidates who demonstrate ethical and professional behavior in their interactions with students, families, colleagues and communities and practice social justice.

Academic and Professional Roles. PEU provides opportunities to prepare
knowledgeable candidates who reflect upon the connections between academics and their professional roles.

Diversity. PEU prepares candidates who believe everyone deserves the opportunity to learn and can learn; they possess knowledge, skills, and dispositions to serve as effective professionals who understand and meet the needs of a diverse society.

Service Orientation/Community Outreach. PEU prepares candidates who value and engage in service and meaningful involvement of the learner/clients and their families, as well as their school and their community.

All Professional Education programs are administered by the dean of the College of Education and are coordinated through the Office of Professional Education. Upon completion of an approved program or degree, passing the appropriate Certification Examinations for Oklahoma Educators, and the recommendation of the University, the candidate will be eligible for certification to serve in the schools of Oklahoma. All candidates completing an approved program or applying for an initial or advanced certificate are subject to all rules and regulations specified by the OSU Professional Education Unit, the Oklahoma State Board of Education, and the Oklahoma Commission for Teacher Preparation. State-mandated changes in teacher certification may result in additional requirements for certification.

Certification programs are offered at various levels, but all require earning at least a bachelor's degree for recommendation for a standard certificate. Graduate programs leading to the master's degree, the education specialist degree, and both the Doctor of Education and the Doctor of Philosophy degrees are offered in several areas. In addition, there are pathways at the graduate level that lead to certification but may or may not lead to graduate degrees. Professional Education programs at Oklahoma State University are accredited by the National Council for Accreditation of Teacher Education (NCATE)/Council for the Accreditation of Educator Preparation (CAEP) and the Oklahoma Commission for Teacher Preparation.

Undergraduate Professional Education programs are offered in the College of Education as well as in the Colleges of Agricultural Sciences and Natural Resources, Arts and Sciences, and Human Sciences. The candidate must meet the requirements of the OSU Professional Education Unit as well as the degree requirements of the particular college. Undergraduate and graduate students who are seeking recommendation for certification from OSU through a Professional Education program must make formal application to do so using the "Application for Admission to Professional Education" and must meet the admission standards specified.

Students classified by the Graduate College as "non-degree seeking" or "provisionally admitted" who are pursuing teacher certification must be admitted to the Professional Education Unit. Information regarding admission requirements may be obtained from the Office of Professional Education or the College of Education website.

Inquiries concerning any aspect of Professional Education programs at Oklahoma State University should be addressed to the head of the school or department offering the program or the Office of Professional Education, 325 Willard.

There are increasing opportunities in business, industry, and state and federal agencies for persons with unique preparation in several education specialties. The Unit also provides academic preparation for a wide range of certification and teaching areas:

Undergraduate Teaching Certification Programs
- Early Childhood Education (PK-3)
- Elementary Education (1-8)
- Elementary/Secondary Level (PK-12) Programs
- Art Education
- Foreign Language (French, German, Spanish)
- Music-Instrumental
- Music-Vocal
- Physical Education/Health/Safety
- Special Education (Mild/Moderate, Severe/Profound Disabilities) (M.S.)

Secondary Level Programs
- Agriculture Education
- Secondary English
- Secondary Mathematics
- Secondary Science
- Secondary Social Studies
- Career and Technical Education
- Family and Consumer Sciences

Advanced Certification Programs at the Graduate level
- Standard School Principal (Elementary-Middle level-Secondary)
- Alternative School Principal
- Elementary Math Specialist
- Library-Media Specialist
- Reading Specialist
- School Counselor
- School Psychologist
- School Speech/Language Pathologist
- Superintendent
- Gifted and Talented Enrichment

Additional Certification Programs
- Initial Certification in Elementary or Secondary at the MS level
- Alternate Pathway to Initial Certification in Special Education

Add-on Programs in:
- Elementary Education
- Early Childhood Education

Graduate Programs
Master's degrees are available in conjunction with all of the above programs and doctorates are available in many. Options and areas of emphasis in several of these fields may be included as part of master's and doctoral degree programs if approved by the head of the school or department offering the program and the dean of the Graduate College.

Admission to Professional Education
The criteria for admission to Professional Education programs are based on University-wide policies recommended by the Director of Professional Education through the Professional Education Council. Requirements are applicable to all Professional Education administrative units of the colleges preparing teachers. Students should submit an Application for Admission to Professional Education Form to the Professional Education Unit as early as possible in their programs. The candidate is not considered a fully eligible participant in a Professional Education program until formally admitted to the Professional Education Unit.

Full admission is required to enroll in the restricted courses in teaching methods and the clinical practice internship.

Criteria for Admission to Undergraduate Professional Education Programs
For admission to the Professional Education Unit, the student must complete the Application for Admission to Professional Education. To be admitted to Professional Education programs within the College of Education, students must meet the required minimum grade-point average. (See "College of Education Admission Requirements") If the student is enrolled in the Professional Education program in the College of Agricultural Sciences and Natural Resources, Arts and Sciences, or Human Sciences, the student should check with the office of the department head for further information.

The student must meet all of the following criteria to be fully admitted to Professional Education:

1. Orientation to Professional Education Course and Field Experiences. An appropriate orientation to Professional Education course must be completed with a grade of "C" or better. One semester credit hour of early field experiences must be completed with a grade of "C" or better or a grade of "P." 
2. Basic Skills Competency. Basic skills competency must be demonstrated by appropriate Certification Examinations for Oklahoma Educators.
3. Minimum cumulative overall GPA of 2.50. (2.75 for Elementary Education) 

The minimum cumulative overall GPA must be earned based on no fewer than 40 credit hours of courses to include lower-division general education requirements as specified in the student's program.

Criteria for Admission to Graduate (post-baccalaureate) Professional Education Programs
Graduate (post-baccalaureate) students must complete the application for Admission to Professional Education form. Post-baccalaureate candidates must meet one of the following criteria for full admission to Professional Education:

1. The student must have completed an approved Professional Education program and hold a valid Oklahoma certificate or Provisional, Standard, or Professional Certificate; or a valid certificate from a state with which the Oklahoma Department of Education has an interstate contract. The certificate or Provisional, Standard, or Professional Certificate must have included successful completion of (a) one semester credit hour of early field experiences with a grade of "C" or better or a grade of "P" and (b) an orientation to professional education course with a grade of "C" or better or a grade of "P." If the student does not hold a valid credential and did not successfully complete the criteria listed above, he or she must meet 2 or 3.
2. Students in a master's program must (a) satisfy the departmental requirements for unqualified admission to the master's degree program; (b) have a minimum cumulative overall GPA of at least 2.50 (2.75 for Elementary Education); (c) complete one semester credit hour of early field experiences with a grade of "C" or better or a grade of "P" and (d) complete an orientation to Professional Education course with a grade of "C" or better or a grade of "P" and receive a passing score on the OGET.
3. Students classified by the Graduate College as "special" or "provisionally admitted" must (a) have a minimum cumulative overall GPA of at least 2.50 (2.75 for Elementary Education); and (b) complete one semester credit hour of early field experiences and an orientation to Professional Education.
course with a grade of "C" or better or a grade of "P" and receive a passing score on the OGET.

Professional Portfolio
The Oklahoma Commission for Teacher Preparation requires candidates for certification in Oklahoma to present professional portfolios as a portion of their professional documentation. Candidates in Professional Education are required to submit a professional portfolio for review and approval at designated checkpoints prior to certification.

Transfer Students
Transfer students must work toward meeting the criteria for full admission to Professional Education established by Oklahoma State University as soon as possible during the first semester at OSU. It may be possible to transfer admission from another Oklahoma institution. For information see the OSU site www.okstate.edu/professional-education or contact the Office of Professional Education.

Calculating Grade-Point Average Professional Education
The required GPA for all Professional Education purposes is calculated based on the University graduation and retention GPA policy.

Retention in Professional Education
For participation in all courses requiring full admission to and for continued acceptability in the Professional Education unit, an undergraduate candidate must maintain a grade-point average required for graduation of at least 2.50 (2.75 for Elementary Education). If this GPA falls below 2.50/2.75, the candidate is placed on probation. When the required graduation GPA is raised above 2.50/2.75, the candidate is removed from probation. If the candidate fails to meet the graduation GPA requirement in that probationary semester or fails to have at least a 2.50/2.75 GPA for that semester, the candidate will be suspended from the Professional Education Unit. A candidate not satisfying the probationary requirements at the end of the semester following the initial probationary semester will be administratively withdrawn from the Professional Education Unit and all courses having full admission as a prerequisite. Readmission to the Professional Education Unit will require a new application. Advisers are available to assist the candidate in regularly reviewing continuing retention or reinstatement in Professional Education programs. A retention review prior to enrollment and again prior to the beginning of classes each semester is encouraged when continuing retention is in question.

Graduate students, including those classified as graduate special students, admitted to the Professional Education unit must meet and maintain the requirements of the Graduate College to remain in good academic standing with the Professional Education Unit. This will require that graduate candidates earn and maintain a 3.00 GPA at Oklahoma State University following admission to Professional Education.

Additional Professional Education Requirements
Candidates in Professional Education programs may be required to document competency in a foreign language at the novice high level and to complete a professional portfolio.

These requirements are dependent upon college matriculation, graduation dates, continuous enrollment, and admission to the Professional Education program. Students must contact their advisers for details.

Program Completers. In Oklahoma, a program completer is defined as a person who has met all the requirements of a state-approved educator preparation program. Program completers include all those who are documented as having met such requirements. OSU requirements include a degree, program credentials as documented on a transcript and written proof of having met the program's requirements which include successful completion of all certification examinations and a professional portfolio.

Background Check for Field Placements
The OSU Professional Education Unit requires ALL non-certified candidates to complete a state level background check (name check) prior to placement in any field experience. (In most cases this would be an Oklahoma check, however, in the case of an out-of-state transfer student it could be a check from their originating state.) The process if facilitated by the Office of Professional Education (325 Willard). In alignment with Oklahoma state statutes and administrative code (OS §70-6-190, OS §70-3-104, OAC 210:20-9-98), the Oklahoma State University (OSU) Professional Education Unit (PEU) requires a state level background check (name check) on ALL non-certified candidates prior to placement in any field experience or clinical practice. The candidate is responsible for associated fees, which may vary depending on in-state or out-of-state student status. The PEU may request an updated background check at any time. We make every effort to place candidates in the most possible field experience or clinical practice situation, school districts do review background checks and past criminal history in terms of their own policies and may decline hosting a particular candidate for field experiences or clinical practice.

Candidates will be notified in the event that a background check is returned containing a report of criminal activity:
1) Where disposition data is not shown or further explanation of the charge or disposition is needed, the candidate will be responsible for providing a certified copy of the disposition. No placement will be made into a field experience or clinical practice until a final disposition is provided.
2) A candidate has any charges pending, no placement will be made into a field experience or clinical practice until satisfactorily resolved and documented with either a cleared background check or a certified copy of the disposition of charges.
3) In the event that incorrect information is returned in a background check, it is the candidate’s responsibility to obtain documentation proving the misidentification.
4) In the case of a deferred sentence: a) Misdemeanor convictions that receive a deferred sentence may receive a placement in field experiences or clinical practice during the period of deferment. b) Felony convictions that receive a deferred sentence will not be placed in field experiences or clinical practice until the terms of deferment have been successfully met.

Diverse Placement in Field Experiences
NCATE/CAEP Statement
"America's classrooms are becoming increasingly diverse; more than one-third of the students in P-12 classrooms are from minority groups. At the same time, an increasing number of students are immigrants, many with native languages other than English and from diverse religious backgrounds. Growing numbers of students are classified as having disabilities. At the same time, minority teachers are less than 15 percent of the teaching force. As a result, most students do not have the opportunity to benefit from a diverse teaching force. Teacher candidates need to develop proficiencies for working with students from diverse backgrounds and with exceptionalities to ensure that all students have the opportunity to learn. Regardless of whether they live in areas with great diversity, candidate must develop knowledge of diversity in the United States and the world, dispositions that respect and value differences, and skills for working in diverse settings."

The Professional Education Unit at Oklahoma State University shares the NCATE/CAEP vision of providing field experiences that prepare our students for careers as educators in an increasingly diverse world. Our intent is to provide opportunities to experience diversity in the communities we serve in Oklahoma; whether that is diversity in ethnicity, socio-economic level, geographic region or in grade level, course offerings, or school day schedule. We recognize that opportunities to experience diversity vary within each program and inherent difficulties may exist in meeting all of these needs in some programs. We also recognize that diversity exists in many different forms and aspects and each program is committed to providing as much diversity as possible in its field experience placements.

The Professional Education Council of Oklahoma State University strives to ensure that teacher education students complete field experiences in schools meeting some or all of the following criteria:
1. Are urban, suburban, and rural;
2. Exceed the minority percentage for the state of Oklahoma;
3. Exceed the average low income status for Oklahoma school children;
4. Are diverse in scheduling, grade level, departments, course offerings, and teachers.

Clinical Practice Requirements
In order to participate in clinical practice, all teacher candidates must complete the Teacher Candidate Profile Application form during the prior semester. Clinical practice information is distributed at the "Intent to student teach" meeting each semester. Candidates are notified of this meeting through consultation with advisers, by e-mail notifications, via the PEU website, and by announcements made in Professional Education classes. Candidates must submit their applications to the Office of Professional Education prior to specified dates in September and February. These dates will be announced to candidates in the same manner as mentioned above. Candidates will be notified by e-mail of their placements after the coordinator of field experiences has received confirmation from the cooperating schools.

Placements will be based on the following criteria:
1) OSU must have a contractual agreement with the participating school district, 2) the principal and the cooperating teacher must be in agreement about the placement, 3) the Cooperating Teacher must meet established criteria to work with a candidate, and 4) a qualified OSU Supervisor must be available for travel to that site.

Placement in field experiences or clinical practice (student teaching) is not guaranteed. Exhibiting professional dispositions, approval by program faculty, and acceptance by a school are all factors in eligibility for placements.

Criteria for clinical practice placement for all Professional Education candidates are:
1. Continued full admission to a program in the Professional Education unit (see "Retention in Professional Education" on the previous page); 2. A current overall grade-point average of at least 2.50 (2.75 for Elementary Education);
3. A grade-point average of at least 2.50/2.75 in courses listed on the current approved program for certification in the areas of professional core, major, and college/departmental requirements (Exception - Secondary Education English requires 2.75 in major requirements). No grade lower than “C” or “P” in either of the areas.

4. Completion of all professional education course work that includes at least one course in social foundations, all early field experiences (45 clock hours minimum), exceptional learners, and human growth and development, with no grade lower than “C” or “P” in any of these courses. It is recommended that all professional sequence course work be completed.

5. Successful completion of submission II requirements for the Professional Education Program portfolio. The exact submission date for portfolio is set by the program certification area. Portfolios should contain the materials listed in the Portfolio Handbook (www.okstate.edu/peul/portfolio.htm) for the pre-internship submission and any additional items required by a specific program. The portfolio is completed in conjunction with the internship and should not be separate.

6. Successful completion of the appropriate subject area test for certification (Beginning Spring 2015 for all certification programs across the University. Some programs currently require this at the program level)

Required Grades in Clinical Practice. A candidate must receive grades of “P” in all sections of clinical practice in order to be recommended for a teaching certificate. A candidate assigned a grade of “P” in any section of clinical practice will not qualify for a recommendation for any level of certification.

Placements in clinical practice are made based on program faculty recommendation, availability of a qualified cooperating teacher, school district and site preferences, availability of a university supervisor, and candidate request. Candidates do not contact schools to secure their own placements. Candidates will not be placed in a school where a relative(s) attends or is employed or where the candidate has developed personal relationships with teachers or administration. In addition, candidates will not be placed in the school system from which they graduated. Finances cannot be considered when determining the internship placement.

Out-of-Area/Out-of-State Placements

A candidate requesting an out-of-area/out-of-state placement due to extenuating circumstances or seeking an assignment that provides exceptional professional experiences that would not be afforded by a local placement must submit a written request and receive the approval of the degree program area coordinator, the unit head, the Coordinator of Field Experiences and Clinical Practices, and the PUE Field Experiences Committee. Securing placements and supervision are the responsibility of the Office of Clinical Practice and the program area coordinator.

Extenuating circumstances may include, but are not limited to, medical or health issues that would impede the progress of the pre-service candidate’s internship, family issues that would cause a hardship in the pre-service candidate’s ability to successfully complete the student teaching assignment, or an issue of personal concern that cannot be addressed through a change in local placement site. Financial exigency alone is not grounds for an out-of-area/out-of-state placement.

Candidates granted an out-of-area/out-of-state placement must meet all clinical practice deadlines and requirements, including attendance of on-campus meetings and pay the following fees:

1. All necessary and appropriate fees required in securing and finalizing the placement (e.g., such as reimbursement for cooperative teacher, supervisor, etc.). These fees are payable to the Office of Professional Education or designated office and/or out-of-state university at the time of registration of the semester in which the placement is sought.

2. If a recommendation for certification is to be made by Oklahoma State University, the candidate is responsible for reimbursing visits performed by the cooperating institution. All other criteria pertaining to in-state clinical practice placements apply as previously stated.

3. OSU fees - A non-refundable administrative fee to cover time and extra work related to securing an out-of-area placement may be assessed when an approved request is submitted to the Clinical Practices office. The fee is due upon approval of designated site(s).

4. Supervising teacher fees - The out-of-area/out-of-state supervising fee is determined by each supervisor, the out-of-area/out-of-state university, and the Field Experience and Clinical Practices Office and typically ranges from $400 to $800 to cover the expenses incurred to conduct the required observations and student teaching evaluations. Students are responsible for all costs related to their out-of-area/out-of-state supervision. The fee is to be paid to Office of Professional Education, who will then pay the supervisor.

5. Cooperating teacher fees - Whereas local cooperating teachers are compensated with free tuition vouchers, an out-of-area/out-of-state cooperating teacher may not benefit from such compensation.

6. Additional fees - The local (out-of-area/out-of-state) cooperating university may require a fee for supervision for student not enrolled in their university or require co-registration in additional credits as a student at their university to attend their student teaching seminars.

Exceptions to this policy are permitted for students who are enrolled in programs that have a specific out-of-area/out-of-state policy and for students who participate in special placements abroad.

Qualifications for consideration of out-of-state/out-of-area placement request:

1. Minimum cumulative 3.0 GPA and 3.0 GPA in content/certification area courses.

2. Successful interview with Program Area Coordinator presenting your request for an out-of-state placement

3. Recommendation from Program Area faculty

4. Agreement from local (out-of-area/out-of-state) university to supervise the student teacher

5. Availability and willingness of qualified university-affiliated supervisor to observe and evaluate the student teacher

6. A memorandum of understanding signed by the student, the Program Area Coordinator, and the Coordinator of Clinical Practice must be on file prior to the request for placement being sent to the school district. The out-of-area/out-of-state university may require additional signed documentation.

Appeals

By enrolling in Professional Education programs at Oklahoma State University, students accept the responsibility for complying with all applicable Professional Education Council policies and procedures that allow them to maintain good academic standing. If the student believes that the established policies of the Professional Education Council have not been fairly or consistently followed, he/she has the right to pursue an appeal to the Student Affairs Committee. For more detailed information pertaining to the appeals process, students are encouraged to contact the Office of Professional Education.

Certification Examinations for Oklahoma Educators

All candidates who graduate or are seeking recommendation for certification from a Professional Education program are required to complete the Certification Examinations for Oklahoma Educators before a license or area of certification can be issued. The examinations, which include a General Education Test, Subject Area Tests, and a Professional Teaching Exam (OGET, OSAT, and OPTE), are administered by the Evaluation Systems, Pearson for the Oklahoma Commission for Teacher Preparation five times each year. Registration materials are available at www.ceee.nesinc.com.


Teacher candidates must successfully complete the OGET prior to admission to Professional Education, the OSAT prior to student teaching and the OPTE at or near completion of their program.

Registration deadlines are indicated on the registration materials and are generally about four weeks prior to the testing date.

Recommendations for Certificate or Additional Certification Areas

Application information for an Oklahoma certificate can be obtained in the Office of Professional Education, 325 Willard. Candidates seeking advisement concerning teacher certificates can be assisted by the Certification Specialist in the Office of Professional Education. Oklahoma State University does not make a recommendation for a certificate or additional certification area until all criteria have been met for the Professional Education program and a passing score has been achieved on the Certification Examinations for Oklahoma Educators (CEOE). Applicants recommended by Oklahoma State University for a certificate or additional area of certification must have achieved passing grades in all sections of clinical practice.

A candidate assigned the grade of “F” in any section of clinical practice will not qualify for a recommendation for a license or any level of certification.

Requirements for certification and degrees are not necessarily the same thing. Candidates must meet all other certification requirements, including portfolio and foreign language proficiency if appropriate.

Requirements for exit from administrator preparation programs include:

1. successful completion of an administrator assessment that evaluates administrator candidates’ knowledge and skills regarding legal, organizational, and financial concepts related to schools, reading comprehension, mastery of writing and verbal skills and child and adolescent growth and development.

2. a culminating portfolio which includes the future administrator’s knowledge of diversity, and demonstrates his or her ability to transfer theory and research to practice.
College of Engineering, Architecture and Technology

College Administration
Paul J. Tikalsky, Ph.D.—Dean
Raman P. Singh, Ph.D.—Associate Dean of Academic Affairs
Charles F. Bunting, Ph.D.—Associate Dean for Research
Ed Kirtley, MA—Assistant Dean of Outreach and Extension

Campus Address and Phone:
201 Advanced Technology Research Center, Stillwater, OK 74078
405.744.5140
Website: www.ceat.okstate.edu

The mission of the College of Engineering, Architecture and Technology (CEAT) is to advance the quality of human life through strategically selected programs of instruction, research and public service, incorporating social, economic and environmental dimensions and emphasizing advanced level programs in engineering that are internationally recognized for excellence. Engineers, engineering technologists and architects, working side by side, constitute one of the most powerful agents for change in our society. New methods are discovered to control the environment, to utilize the resources and forces of nature, and to increase productivity of needed goods and services, in short, to improve the quality of life for all.

The work of engineers, technologists and architects is focused on satisfying human needs through the conception, design, fabrication, maintenance and testing of systems, devices, processes and installations. This work provides ample opportunity to express creativity and requires an ability to make decisions. As we progress into the future, professionals with a higher education will continue to be largely responsible for shaping our world. The power they exercise is an exciting prospect and presents a sobering responsibility. Less complex problems have been solved and are now a part of history. Many difficult problems remain. The need for talented and highly trained professionals is obvious; one will be embarking on a lifetime of challenge as he or she prepares for a career in engineering, engineering technology or architecture at Oklahoma State University.

The College of Engineering, Architecture and Technology offers a complete spectrum of educational opportunities designed to give graduates the capability and flexibility to meet the ever-changing needs of a society that is committed to technological innovation. To make continuing contributions, engineers, architects and technologists must have many abilities at their command. The modern tools and processes of industry must be understood. The processes of design and analysis require a firm understanding of mathematics and the sciences. An effective engineer, architect or engineering technologist must develop sensitivity to human needs, ideas, institutions and cultures. These programs prepare graduates to be effective contributors within human organizations and provide an increased understanding of both the technical and non-technical factors that shape our human environment. With this firm foundation, and a commitment to lifelong learning, College of Engineering, Architecture and Technology graduates are fully prepared to make contributions to society throughout their professional careers.

The curriculum in each program provides the optimum combination of breadth in the enduring fundamentals and specialization in a discipline. Each curriculum sensitizes the student to ethical, social, cultural and global issues that will shape their ideas and contributions. To equip the student to contribute to solutions at the cutting edge of technology, curricula are continuously evolving to include current applications of the principles. Through the combination of theory, practice and improved sensitivity to diverse issues, graduates will be prepared to support their diverse interests while positively contributing to the advancement of technology and the world.

Academic Programs
Academic programs offered in the College of Engineering, Architecture and Technology culminate in the following degrees:

Schools of Engineering:
Bachelor of Science in Aerospace Engineering, Biosystems Engineering with options in biomechanical, bioprocessing and food processing, environment and natural resources; Chemical Engineering with options in environmental, biomedical/biochemical and premedical; Civil Engineering with an option in environmental; Computer Engineering; Electrical Engineering; Industrial Engineering and Management; and Mechanical Engineering with options in premedical.
Master of Science in Biosystems Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering with options in Control Systems and Optics and Photonics, Engineering and Technology Management, Environmental Engineering, Industrial Engineering and Management, and Mechanical and Aerospace Engineering with an option of Unmanned Aerial Systems
Doctor of Philosophy in Biosystems Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering and Management, and Mechanical and Aerospace Engineering.

School of Architecture:
Bachelor of Architecture, Bachelor of Architectural Engineering.

Division of Engineering Technology:
Bachelor of Science in Engineering Technology in Construction Management Technology with options in building and heavy, Electrical Engineering Technology with a computer option, Fire Protection and Safety Engineering Technology, and Mechanical Engineering Technology.

Accreditation
Undergraduate engineering programs are separately accredited by the Engineering Accreditation Commission of the ABET, http://www.abet.org. Specifics of accreditation are found in the sections devoted to each program on the following pages.
The Bachelor of Architecture program is accredited by the National Architectural Accrediting Board, Inc., phone 202.783.2007.
The undergraduate engineering technology programs are separately accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org. Specifics of accreditation are found in the program descriptions in the section "Division of Engineering Technology."

Special College Programs
Cooperative Education Program (Co-op) provides an avenue for undergraduate students to complete a year of full-time work experience directly related to their academic studies. Co-op students alternate terms of major-related employment with terms of full-time course work to achieve a quality education and industry experience. In addition to professional development, participation in the Co-op program earns academic credit and maintains full-time enrollment status for students during the work experience terms.

CEAT Scholar's Program provides educational experiences for a select group of gifted students to develop and enhance their technical competence, world view, professional and public responsibility, and leadership skills. Based on demonstrated academic and leadership potential, approximately 25 freshmen are selected each year, by application and interview, to enter this four year program. Students participate in special lectures, regional tours, residence hall programs, seminars, personal development activities, faculty mentoring, and summer tours in the U.S. and abroad.

CEAT Freshman Research Scholars Program provides opportunities for accelerated intellectual development of a select group of students. Each student is assigned a research faculty mentor and participates in a research program. The initial assignment is for one year and it may be extended based on student interest, research project continuation and mentor availability.

Career Services. The Career Services Office for the College of Engineering, Architecture and Technology is dedicated to helping students reach their career goals. CEAT Career Services provides individualized career assistance, specialized workshops, and resources on a variety of topics including: career exploration, job search strategies, resume and job search correspondence preparation, interviewing skills, and salary negotiation. The office also supports the Cooperative Education Program (Co-op) and provides individual career assessments for undergraduate students. As part of the OSU Career Services system, CEAT Career Services works in close partnership with CEAT Student Academic Services to link academic and career success.

CEAT Living Unit Programs. CEAT residential floors have been established in the Allen Residence Halls for both male and female CEAT students. Living/ Learning Communities provide an atmosphere that is conducive to study, the students experience a community where they can work together, have access to tutoring, and serve as role models for other students. Special activities are planned for the floors, including events with faculty and other leaders.

Departmental Clubs and Honor Societies
Alpha Epsilon (Biosystems and Agricultural Engineering Honor Society)
Alpha Pi Mu (Industrial Engineering and Management Honor Society)
Alpha Rho Chi (Architecture Honor Society)
Amateur Radio Club - W5YJ
American Indian Science and Engineering Society
American Institute of Architecture Students
American Institute of Aeronautics & Astronautics
American Institute of Chemical Engineers
American Society for Quality
American Society of Agricultural and Biological Engineers
American Society of Civil Engineers
American Society of Heating, Refrigeration and Air Conditioning Engineers
American Society of Mechanic Engineers: International
American Society of Safety Engineers
Architectural Engineering Institute
Architecture Students Teaching Elementary Kids (ASTEK)
CEAT Student Council
Chi Epsilon (Civil and Architectural Engineering Honor Society)
Construction Management Society
Construction Specifications Institute
Cowboy Motorsports Quarter Scale Tractor Team
Engineers Without Borders
Eta Kappa Nu (Electrical and Computer Engineering Honor Society)
Fire Protection Society
Institute for Operations Research and the Management Sciences
Institute of Electrical and Electronics Engineers (two student branches)
Institute of Industrial Engineers
Institute of Transportation Engineers
International Fluid Power Society
International Society for Automation
Omega Chi Epsilon (Chemical Engineering Honor Society)
Pi Tau Sigma (Honoray Mechanical Engineering Society)
Sigma Gamma Tau (Honorary Aerospace Engineering Society)
Sigma Lambda Chi (Construction Management Technology Honor Society)
Society of Automotive Engineers
Society of Automotive Engineers Formula Racing Team
Society of Automotive Engineers Mini-Baja Team
Society of Black Engineers, Technologists & Architects
Society of Fire Protection Engineers
Society of Hispanic Professional Engineers
Society of Manufacturing Engineers
Society of Women Engineers
Student Association of Fire Investigators
Student Firefighter Combat Challenge Team
Tau Alpha Pi (Technology Student's Honor Society)
Tau Beta Pi (Engineering Student's Honor Society)

CEAT Honors Program
The OSU Honors College provides challenges for undergraduate students of unusually high ability, motivation and initiative. Honors classes, seminars and independent study courses are designed to align students and instructors in a manner that encourages discussion and provides a mature approach to learning. Each honors course completed with an "A" or "B" grade is identified on the student's transcript as such. A special bachelor's degree honors diploma is conferred upon graduation for successful completion of all OSU Honors College requirements.

Information regarding The Honors College at OSU, and Scholar Development/Leadership Programs can be found in the Catalog, in the Academic Enrichment Programs section.

Scholarships
Several CEAT scholarships are funded through the generosity of alumni, private, and corporate donations. Awards are available for undergraduate students at all levels, and are granted on the basis of academic achievement, campus involvement and leadership potential, as well as financial need.

Freshmen and undergraduate transfer students are automatically considered for CEAT scholarships through their applications for admission to OSU. For full scholarship consideration, students should apply for admission by February 1st priority deadline.

Current undergraduate (continuing) students should submit applications for general CEAT scholarships online at http://www.ceat.okstate.edu/scholarships. Students should also check with their individual departments for information regarding scholarships specific to their majors.

High School Preparation
In addition to the curricular requirements for admission specified by OSU, the College of Engineering, Architecture and Technology strongly recommends that students have a fourth year of mathematics and an additional year of laboratory science.

General Education Requirements
For students in Engineering, Architecture and Technology, courses in the humanities and social sciences provide both a broad education and essential background for addressing the critical issues of society. Students in the College must take General Education courses consistent with those specified on the degree requirement sheet. Each student should visit with his or her adviser to ascertain that appropriate courses are being selected. Students in some programs are required to complete a course in technical report writing. Students making an "A" or "B" in the first English composition course (ENGL 1113), need not take ENGL 1213, and may take ENGL 3323, to meet both the General Education requirement for English and specific program requirements. See Academic Regulations 3.5 for further details.

Computing Requirements
For students in Engineering, Architecture and Technology, the college requires that students have several basic tools. Students in the College must have a scientific calculator and a laptop computer. The scientific calculator should be capable of computing trigonometric functions, logarithmic and natural logarithmic functions, basic statistical analysis, and all algebraic functions. The laptop requirements are published on the college website www.ceat.okstate.edu.

Schools of Engineering
Each of the schools of engineering offer Bachelor of Science, Master of Science, and Doctor of Philosophy degree programs. These degree programs are available in each engineering school to prepare engineers for careers in advanced engineering, research and development. The programs are described under each school's headings and in the “Graduate College” section of the University Catalog.

The common curricular objectives for the engineering programs are to develop each student’s: (1) capability to delineate and solve the engineering problems of society in a practical way, (2) sensitivity to the socially-related technical problems which confront the profession, (3) understanding of the ethical characteristics of the engineering profession and practice, (4) understanding of the engineering responsibility to protect both occupational and public health and safety, and (5) ability to maintain professional competence through life-long learning.

Class Placement
Initial placement in OSU mathematics courses is by placement examination to ensure that each student will be challenged, but have the preparation to be successful in the first mathematics course. Placement in science courses is based on prior preparation in the science and completion of or placement beyond prerequisite mathematics courses. When appropriate, a student with an exceptionally strong background can obtain academic credit by advanced standing examination or by College Level Examination Program (CLEP) tests.

Academic Advising
The College's Office of Student Academic Services provides advisement for all engineering pre-professional school students. At the time of admission to Professional School, typically in the third year of studies, he or she will be assigned a faculty adviser in the school of their major (within the college).

Each student is personally advised in the planning and scheduling of his or her course work, assisted with the selection of a major, and is counseled and advised individually on matters of career choice, activities at OSU, and on other academic matters.

Each student, and his or her adviser, carefully selects general education, core engineering, and elective courses to meet the curriculum objectives and accreditation criteria. Specific criteria include appropriate computer-based experiences, knowledge of probability and statistics, competence in written and oral communications, an understanding of ethical, social, economic and safety considerations, and engineering design experiences that are integrated throughout the curriculum. An introduction to the engineering field and the majors available in the college, is presented in ENGR 1111. In this student development course, students will also learn how to be successful as engineering students and will be well informed of the many resources that are available on campus to promote their success.

To assist students in planning and mapping their academic success, an electronic account is created for each student at the time of initial enrollment. Students have access to their personal account, via the STAR System, where they can review their advising materials, degree sheet, flowchart and other documents. The adviser assists the student with academic decisions and works to ensure accuracy and compliance; however, the ultimate responsibility for meeting degree requirements rests with the student.

The Engineering Professional School Concept
A student entering OSU is admitted into the pre-professional school program and will complete course work that is typically taken during the first two years of an engineering curriculum. Near the completion of this course work, the student is considered for admission to one of the engineering professional schools of the College to continue in the upper-division program. After satisfying admission standards, the student is then permitted to pursue a curriculum leading to the Bachelor of Science degree in his or her discipline.

Pre-Professional School
In each school of engineering, lower-division course work is devoted to preparing the student for professional school. The content of the pre-professional school program is similar for most engineering
specialties and includes English composition and technical course work devoted to mathematics through calculus and differential equations, general chemistry, general physics, engineering and engineering sciences.

Transfer students will be admitted directly to pre-professional school if they satisfy all OSU resident transfer student requirements and have a GPA of at least 2.00 not to include activity, performance or remedial courses in the most recent semester completed.

Regardless of previous background, all new engineering students must enroll in ENGR 1111, BAE 1012 (if the student plans to study biosystems engineering), or ARCH 1112 (if the student plans to study architectural engineering). New students may be accepted on the basis of having a strong background in mathematics and science so will be required to complete additional course work before enrolling in required courses in these subjects. Students transferring to pre-professional school from another major at OSU or University Academic Services must meet the same requirements for admission as a student transferring from another college or university.

Students not directly admissible to pre-professional school, but who meet OSU requirements for admission, may be admitted to the university’s Learning and Student Success Opportunity (LASSO) Center, where they will be advised for two or three semesters. Students interested in transferring from the LASSO Center to CEAT must meet academic requirements as documented by CEAT and filed in the LASSO Center.

International student applications must be received by June 15, November 1 or April 1 for the fall, spring and summer terms, respectively, to be considered for admission to pre-professional school.

Professional School. Upon formal admission to the professional school of his or her choice, the student proceeds through the junior and senior years of the degree program, fulfilling “Major Requirements” as listed in the right column on the degree requirement sheet. Degree requirement sheets can be found in the university’s publication of Undergraduate Programs and Requirements, available online. Upon completion of all degree requirements, the student is awarded the Bachelor of Science degree.

Engineering Professional School Admission Requirements

All undergraduate engineering students must follow the curriculum and requirements for their chosen engineering major, as prescribed in the university’s publication of Undergraduate Programs and Requirements, for their matriculation date, or upon their election, a later annual version of that publication. Students are encouraged to carefully read the program requirements for their chosen major and matriculation date.

To be admitted to one of the professional schools of engineering, the student must:

1. Complete a minimum of 60 credit hours of courses listed on the degree requirement sheet from an accredited institution of higher learning.
2. Complete all required (shaded) courses on the degree requirement sheet.
3. Earn a grade of “C” or better in technical courses required for the degree and taken prior to admission to professional school. In these courses, meet or exceed the Technical GPA requirement listed in the Departmental GPA Requirements section below (when applicable).

Note: Technical courses include astronomy, biology, biochemistry, chemistry, geology, engineering (BAE, CHE, CIVE, IEM, ECEN, ENGR, ENSC, MAE), math, physics, statistics, zoology, and any additional science courses listed on the degree requirement sheet.
4. Complete a minimum of 12 credit hours of courses at OSU, required for the degree. In these courses, meet or exceed the OSU GPA requirement listed in the Departmental GPA Requirements section below (when applicable).
5. Complete a minimum of 9 credit hours of technical courses at OSU, required for the degree. In these courses, meet or exceed the OSU Technical GPA (all technical courses required for the degree taken at OSU) listed in the Departmental GPA Requirements section below (when applicable).
6. Earn a final grade of “C” or better in all courses submitted to satisfy the University’s English requirement.
7. Meet any additional requirements for the selected major, as specified below.
8. Demonstrate an acceptable level of academic competence in subject material comparable to that covered in pre-professional school as defined by the selected professional school below. Such demonstration may be by completion of course work or by examination with not more than half the requirements satisfied by examination.
9. Demonstrate an acceptable level of professional potential, including academic integrity and ethical behavior, as determined by the professional school head.

Departmental GPA Requirements

All specified GPAs are calculated based on the last grade earned in repeated courses. The minimum GPA requirements by school, and any additional requirements, are as follows:

a. School of Biosystems and Agricultural Engineering:
   GPA Requirements for Professional School: Technical GPA-2.50.

b. School of Chemical Engineering:
   GPA Requirements for Professional School: Technical GPA-2.70.

GPA GPA-2.50, OSU Technical GPA-2.50.

c. School of Civil and Environmental Engineering:
   GPA Requirements for Professional School: Technical GPA-2.50, OSU GPA-2.50, and a grade of “C” or better in all technical courses that are prerequisites for a CIVE course and in all required technical pre-professional courses (underlined on the degree requirement sheet) whether taken prior to professional school or not.

d. School of Electrical and Computer Engineering:
   GPA Requirements for Professional School: Technical GPA-2.70, OSU GPA-2.60, OSU Technical GPA-2.70.

e. School of Industrial Engineering and Management:
   GPA Requirements for Professional School: Technical GPA-2.50, and a grade of “C” or better in each course that is a prerequisite for an IEM course and in all technical pre-professional courses (underlined on the degree requirement sheet) whether taken prior to professional school or not.

f. School of Mechanical and Aerospace Engineering:
   GPA Requirements for Professional School: Technical GPA 3.0, OSU GPA 3.0, OSU Technical GPA-3.0.

Students may enroll in no more than nine hours of upper-division major requirements prior to admission to professional school unless they secure permission from the head of the school. However, enrollment preference in such courses will be given to students admitted to the professional school.

Bio systems and Agricultural Engineering

Daniel L. Thomas, PhD, PE—Professor and Head

The School of Biosystems and Agricultural Engineering is administered jointly by the College of Agricultural Sciences and Natural Resources and the College of Engineering, Architecture and Technology.

Biosystems engineers are professionals who create and adapt engineering knowledge and technologies for the efficient and effective production, processing, storage, handling and distribution of food, feed, fiber and other biological products, while at the same time providing for a quality environment and natural and protecting natural resources. Biosystems engineers directly address problems and opportunities related to food, water, energy, and the environment—all of which are critical to the quality of life in our society. Subject-matter specialization is provided through the following four undergraduate option areas: food processing, environment, and natural resources, biomechanical, and bioprocessing and biotechnology.

Biosystems engineering courses integrate engineering sciences, physical sciences, and biological sciences, and teach students to address real-world challenges. With the guidance of experienced faculty, students work both as individuals and in teams to design creative solutions to complex problems.

The overall objective of the undergraduate biosystems engineering degree program is to provide the comprehensive education necessary to prepare students for successful, productive and rewarding careers in engineering for agricultural, food and biological systems. Graduates of the program will:

• establish themselves as practicing professionals able to understand, analyze, and solve real-world problems in food, agricultural, environmental, and/or biological systems.
• be effective in oral, written and visual communication as practicing professionals.
• be able to work successfully as a member of a professional team and function effectively as responsible professionals.
• be able to perform in a professional and ethical manner as a practicing professional.
• be committed to enhancing knowledge and skills through continuing education and actively participate in professional development activities.

The undergraduate educational program is divided into two components—pre-professional and professional. In the pre-professional portion of the biosystems engineering program (usually equivalent to two years of study) the focus is on the following biological, physical, chemical and mathematical principles of engineering, supplemented by appropriate general education courses in English, social sciences and humanities. Students who demonstrate proficiency in this portion of the program are eligible for admission to the professional school in biosystems engineering.

The professional school of biosystems engineering curriculum (typically two years) builds systematically upon the scientific knowledge acquired in the pre-professional curriculum. In professional school, students have the opportunity to focus on the option areas given above. The degree is accredited by the Engineering Accreditation Commission of ABET (see www.abet.org) under criteria for biological engineering and similarly named programs.

Each professional school course builds upon preceding engineering courses to
Chemical engineers often find themselves defining a problem or product, developing a process to do what is needed, and then designing the plant to carry out the process. After the plant is established, chemical engineers commonly manage operations, oversee equipment maintenance, and supervise control of product quality. They trouble-shoot problems that hinder smooth operations, and they plan for future expansions or improvements. Their training and knowledge make them well qualified to market products and processing equipment for plants, or even to market the complete plant itself. The varied background and experience of their study prepares them ideally suited for advancement into top-level managerial and executive positions.

Program Educational Objectives. OSU Chemical Engineering graduates, a few years after graduation will possess:

- Competencies - skill in tools and techniques that are fundamental to the job, many of which need to be learned after graduation.
- Professionalism - partnership in the mission and within the human context of the enterprise; ethics, effectiveness and awareness of the broad context of detailed work.
- Balance - a wise self-direction to life, community, health, and self view that finds the right balance between personal choices, that energizes self and others and enables effectiveness in relationships with others.

The goal of the BS degree program is to produce graduates who possess broad-based knowledge, skills and judgment that prepares them to succeed in the profession of engineering or in further studies at the graduate level, including medical school. To achieve this goal, the program is designed to progressively develop both technical and human skills.

In the pre-professional portion of the chemical engineering program (usual equivalent to two years of study), the focus is on the underlying scientific and mathematical principles of engineering, supplemented by appropriate general education sciences and humanities. Students who demonstrate proficiency in this portion of the program are eligible for admission to the professional school.

The curriculum in the professional school (typically the last two years) builds systematically upon the scientific knowledge acquired in the pre-professional curriculum. In the professional school, students have the opportunity to focus in one of three emphasis areas: (1) the regular course prepares a graduate for a wide range of employment opportunities; (2) the pre-medical option is for those who wish preparation for medical school; and (3) the biomedical/biochemical option is for those who seek employment at the professional level, leading to progressively more complex, open-ended problems. The course work includes sensitizing students to socially-related technical problems and their responsibilities as engineering professionals to behave ethically and protect occupational and public safety. The program culminates in the senior-year design courses in which the students integrate the analysis, synthesis and other abilities they have developed throughout the earlier portions of their study into a capstone experience. At this point, students will be able to design components, systems and processes that meet specific requirements, including such pertinent societal considerations as ethics, safety, environmental impact and aesthetics. The students have developed and displayed the ability to conduct experiments essential to specific studies and to analyze the experimental results that lead to meaningful conclusions.

An integral part of this education continuum, from basic science through comprehensive engineering design, are learning experiences that facilitate the students’ abilities to function effectively in both individual and team environments. To achieve this, the program provides every graduate with adequate learning experiences to develop effective written and oral communication skills. State-of-the-art computational tools are introduced and utilized as a part of their problem-solving experiences. Finally, the students’ experience in solving ever-more-challenging problems enables them to continue to learn independently throughout their professional careers.

A wide variety of employment opportunities are available for biosystems engineers in industry, public service and education. Some of these opportunities include positions in governmental agencies, consulting engineering firms, and agricultural and food equipment industries. Biosystems engineers are employed throughout the U.S. as well as internationally.

Students interested in a degree in biosystems engineering may initially enroll in the College of Engineering, Architecture and Technology or the College of Agricultural Sciences and Natural Resources. Students who enroll in the College of Agricultural Sciences and Natural Resources should request a biosystems engineering adviser and transfer to the College of Engineering, Architecture and Technology by the end of their first semester.

Graduate Programs

The Department of Biosystems and Agricultural Engineering offers programs leading to the Master of Science and Doctor of Philosophy degrees in biosystems engineering. These degrees emphasize research and development. Excellent laboratory and computer facilities are available for students to explore research and design in such areas as bioprocessing, food engineering, sensor and control technology, waste management and utilization, hydrology, water quality, porous media flow, and intelligent systems for agricultural machine design and production.

Research projects are supported by the Agricultural Experiment Station and by state, federal and private grants and contracts. Well-trained faculties, many of whom are registered professional engineers with research, consulting and design experience, guide the graduate students’ activities and plan programs to meet students’ interests in biosystems research and special equipment to conduct their work. They are expected to demonstrate, by supporting research or by designs, the ability to identify a problem, define alternatives, propose a solution, organize a design or an experimental investigation, manage the project to conduct the work and report the results through peer-reviewed papers and professional presentations.

Admission Requirements. Admission to either the Master of Science or Doctor of Philosophy degree program requires graduation from an engineering curriculum accredited by the Engineering Accreditation Commission of ABET (www.abet.org). Students without accredited degrees may be admitted provisionally and may be required to take additional courses.

A student must be accepted by an adviser in the department prior to official admission to the graduate program.

Degree Requirements. A candidate for either of the graduate degrees listed above follows an approved plan of study which must satisfy at least the minimum University requirements for that particular degree.

Chemical Engineering

Robert Whiteley, Ph.D.—Hendrix Chair, Professor and Head

Chemical engineers use the language of mathematics to describe the chemical and physical behavior of molecules (solid, liquid, gas, or plasma). This ability is used to design and operate processes that produce useful products. Chemical engineers work in the design and manufacture of industrial products such as pharmaceuticals, fuels, biochemicals, semiconductor materials, foods, plastics, paper, petroleum products and chemicals. Key to providing a benefit to society, chemical engineers are responsible for resource conservation, minimizing pollution, minimizing costs, and maximizing quality and safety of processes that make the products.

The emphasis on the chemical nature of everything people use is what makes chemical engineers different from other engineers. The emphasis on the processes that make the products different is what makes chemical engineers different from chemists.
The general credit requirement is a minimum of 90 credit hours beyond the BS degree, including at least 36 hours of research work. The courses taken must include CHE 5123, 5213, 5743 and 5843.

The Doctor of Philosophy Degree. The general credit requirement is a minimum of 90 credit hours beyond the BS degree, including at least 36 hours of research work. The courses taken must include CHE 5123, 5213, 5743, 5843, and 6703. Each student is responsible for consultation with his or her advisory committee in preparing the study plan.

Civil and Environmental Engineering

John N. Vennstra, PhD, PE—Professor and Head

Civil engineers build the future. The exceptional diversity of professional practice in civil and environmental engineering presents many career opportunities for students.

The concern of civil engineers is infrastructure - the design, construction, management, and efficient utilization - which allows society to function. Civil engineers plan, design and construct, highways, waterway and railway systems, harbors and shipping facilities, systems for the treatment and distribution of water and for the collection and treatment of municipal and industrial waste, dams and hydroelectric works, airports and terminals, structures of every kind including buildings, bridges, towers, industrial plants, tunnels and subway systems, processes for the control of water and air pollution, and many other works of general benefit to society.

The professional curriculum in civil engineering is based on the pre-professional coursework in mathematics, physical sciences and engineering sciences. On this foundation, required courses equip the student with the basic skills needed for the professional practice of civil engineering and provide the tools for more advanced study. Engineering theory and principles are developed in a way that will enable students to contribute to the solution of civil engineering problems. This education is characterized by the flexibility available in a study plan that is designed to satisfy the particular needs of the student, while conforming to the general requirements implied by the title of the degree and specified by the University.

The Bachelor of Science in Civil Engineering degree program equips and prepares engineers who a few years after graduation will be:

1. Contributing to society through the practice of civil engineering in a variety of contexts, including the protection of public health and safety and the development of sustainable engineering solutions;
2. Effectively applying the technical knowledge, engineering principles, communication skills and personal attributes necessary to be adaptable and successful in the civil engineering profession;
3. Advancing within their profession, including attaining professional licensure and positions of leadership; and
4. Exhibiting life-long learning, including the pursuit of advanced degrees.

Educational Objectives. The Bachelor of Science in Civil Engineering degree program equips and prepares engineers who a few years after graduation will be:

1. Contributing to society through the practice of civil engineering in a variety of contexts, including the protection of public health and safety and the development of sustainable engineering solutions;
2. Effectively applying the technical knowledge, engineering principles, communication skills and personal attributes necessary to be adaptable and successful in the civil engineering profession;
3. Advancing within their profession, including attaining professional licensure and positions of leadership; and
4. Exhibiting life-long learning, including the pursuit of advanced degrees.

The curriculum is designed to enable students to satisfy the educational objectives in conjunction with the student outcomes. These outcomes state that graduates of the program will have: (a) an ability to apply knowledge of mathematics, science, and engineering, (b) an ability to design and conduct experiments, as well as to analyze and interpret data, (c) an ability to design systems, components, or processes to meet desired needs within realistic constraints (such as economic, environmental, social, political, ethical, health, safety, and sustainability), (d) an ability to function on multi-disciplinary teams, (e) an ability to identify, formulate, and solve engineering problems, (f) an understanding of professional and ethical responsibility, (g) an ability to communicate effectively, (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context, (i) a recognition of the need for, and an ability to engage in life-long learning, including an understanding of the importance of professional licensure, (j) a knowledge of contemporary issues, (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice, (l) an ability to apply knowledge in six technical areas in civil engineering, and (m) an ability to explain basic concepts in management, business, public policy, and leadership.

The School provides a curriculum that is effective and balanced among the major areas of civil engineering practice. Design capabilities are developed throughout the curriculum, culminating in a comprehensive senior design experience, incorporating much of the previous course work. Some degree of specialization is provided through the choice of elective courses in structures, engineering mechanics, transportation engineering, soil mechanics and foundations, construction engineering and management, environmental engineering and water resources. There is a designated option for those students wishing to concentrate more heavily in the environmental area of practice. Program curricula requirements are outlined in the publication Undergraduate Program and Requirements. The general civil option and the environmental option are accredited together by the Engineering Accreditation Commission of the ABET under the criteria for civil and similarly named engineering programs.

The Master of Science Degree. Two options are offered for this degree, Research-Oriented and Practice-Oriented options. General requirements for the Research-Oriented MS degree are 32 credit hours of work beyond the BS degree and an acceptable thesis. At least 18 hours must be in class work and a minimum of six hours of credit is required for thesis research. The general requirements for the Practice-Oriented MS degree are 32 credit hours of work beyond the BS, including two hours of credit assigned to an acceptable technical report. For both options, the courses taken must include CHE 5123, 5213, 5743 and 5843.

Graduate Programs

The School of Civil and Environmental Engineering offers three programs leading to post-baccalaureate degrees—the Master of Science degree in civil engineering, the Master of Science degree in environmental engineering, and the Doctor of Philosophy degree. The Master of Science degree is characterized by a technical specialization in a particular area of study. The Doctor of Philosophy degree is designed to prepare students for research and for the teaching profession in engineering.

Major areas of study in the School are applied mechanics, structural analysis and design, transportation, construction engineering and management, geotechnical engineering, water resources, and environmental engineering. Research in all major fields is continuously pursued. Master of Science in Civil Engineering candidates may choose either to specialize or to engage in a broadly based program of study, in accordance with an approved and purposeful plan of study.

Admission Requirements. Candidates for the Master of Science or Doctor of Philosophy degree should have graduated from a civil engineering curriculum accredited by the ABET. Graduates from other curricula and schools should submit transcripts to the head of the School of Civil and Environmental Engineering for evaluation. Admission to the Master of Science in environmental engineering degree program is permitted for students who meet the minimum prerequisites as established by the School of Civil and Environmental Engineering.

Degree Requirements. All degree programs follow an approved plan of study that must be submitted at the time of application. An equivalent is usually granted by the flexibility available in a study plan that is designed to satisfy the particular needs of the student, while conforming to the general requirements implied by the title of the degree and specified by the University.

The Master of Science degree in civil or environmental engineering requires the completion of at least 30 credit hours beyond the bachelor’s degree, including a research thesis for which no more than six credit hours may be granted. The non-thesis option (32 credit hours) described in the Graduate College section may be permitted at the discretion of the student’s advisory committee.

The Doctor of Philosophy degree requires the completion of at least 90 credit hours of course work beyond the bachelor’s degree, including not more than 30 credit hours for the research thesis. In addition, the candidate must meet the equivalency of the language requirement (six hours) in selected areas at the discretion of his or her committee to facilitate his or her research. Generally, other admission as a candidate for the Doctor of Philosophy degree requires the candidate to demonstrate that any program offered by the School will not be granted until a member of the Graduate Faculty in the School agrees to serve as major (or thesis) adviser for the prospective candidate.

Electrical and Computer Engineering

James C. West, PhD—Professor and Interim Head

Electrical Engineering and Computer Engineering (ECE) are two related professional engineering disciplines that are responsible for the health, quality of life, and safety that we often take for granted. Engineers are creative problem solvers who make real-world contributions that improve the quality of the world we enjoy today, while offering exciting opportunities for the future. One of the most exciting aspects of being an electrical engineer or computer engineer is that there is never just one way to solve an engineering design problem. Engineers use creativity, innovation, and expertise to design products and services that meet human needs, while staying within the constraints set by nature. A major difference between science and engineering is that scientists deal with the world that is, while engineers envision the world that could be. It is the responsibility of the engineer to identify what people need or want and determine the best way to provide it.

Electrical Engineering deals with electricity, power, communications, and the design of intelligent systems. Electrical engineers dream of the future and have the skills and talents to shape that future. As they use new technologies to provide new ways of seeing the world, while also bringing people together, electrical engineers develop the technologies that bring out the best in people.

The power to light the darkness, the knowledge to know where you are on earth within meters, and the skills to communicate, not only across the state or globe, but with deep space satellites across distances of millions of Earths, have all
been developed by electrical engineers.

Computer engineering is a relatively young engineering discipline that combines a strong foundation in electrical engineering with elements of computer science, including hardware-software integration and software design, to deal with the many “digital” or computer-based systems and devices we encounter every day. Computer engineers and electrical engineers have many things in common. Computer engineers analyze, design, and develop computer-based systems and digital electronics, focusing on all aspects of computing, both hardware and software. Computer engineers understand digital logic design, computer architecture, digital communications, computer and sensor interfaces, microprocessors, VLSI circuits and systems, operating and software systems, and computer arithmetic. Together, they apply this knowledge to solve important problems in diverse areas. The U.S. Department of Labor Statistics’ Occupational Handbook predicts that computer engineering is one of the three fastest growing occupations in the nation and is expected to grow much faster than most other occupations.

Electrical engineers and computer engineers are creative and innovative problem solvers that harness their creativity to develop many modern technologies and devices. The technologies that electrical engineers and computer engineers discover and develop have improved lives immeasurably, and future technologies will improve and change them even more. An undergraduate degree in electrical engineering or computer engineering provides the opportunity to make a difference in these exciting areas. From providing reliable electricity to millions across the United States, to designing microscopic tracking devices to better understand and protect endangered species, electrical engineers and computer engineers make a great impact on society.

Beyond creating technology, engineers of tomorrow must be aware of the social, economic, ethical and environmental impact of these technologies. They must also communicate effectively, possess excellent teamwork skills, and understand, perform, and complete the process of engineering design. The undergraduate program in electrical engineering and computer engineering at Oklahoma State University equip graduates with these critical skills.

Program Educational Objectives. The skills and attitudes that will benefit computer engineers and electrical engineers are defined through the educational objectives of the program.

Graduates of electrical engineering and computer engineering at Oklahoma State University will:

• be widely employed across a range of disciplines and sub-disciplines in electrical engineering and computer engineering and will report the program provided the preparation needed to succeed in an engineering career.
• be able to succeed in obtaining a professional or graduate degree should they choose to. At least one-third of our graduates will earn or be pursuing an additional degree within five years following graduation.
• report that in their careers they can function on multidisciplinary teams, communicate effectively, and perform engineering design.
• follow ethical standards in their careers and engage in public and professional service, community activities.
• understand the impact of social, economic, or environmental factors on engineering practice.

The School of Electrical and Computer Engineering (ECE) offers a full range of undergraduate and graduate program choices. A degree in electrical engineering or computer engineering is an excellent foundation for other professional fields such as medicine and law. Many graduates also pursue advanced programs in business and management after earning a degree in engineering.

The undergraduate electrical engineering and computer engineering programs at Oklahoma State University prepare each graduate for a life-long professional career. During the first two years, students complete a carefully designed pre-professional program consisting of mathematics, physical sciences, engineering sciences, introductory electrical and computer engineering courses, computer science, and selected courses in the humanities and social sciences. For the remaining years of the program, students concentrate on specific electrical engineering and/or computer engineering courses.

Students majoring in electrical engineering or computer engineering can expect to obtain the life enhancing skills needed by tomorrow’s professionals. These skills include:

• creative problem solving
• professional skills that will contribute to their success in the profession
• developing abilities that will allow them to help shape the future

For electrical engineering students, these skills are learned through our curriculum in five key specialization that enable students to tailor their course choices in order to gain both a breadth of knowledge and a depth of understanding in their chosen area.

Computer engineering students learn these skills by focusing on their own challenging specialized curriculum, also designed to provide breadth and depth within the discipline. Opportunities to take specialized courses in areas including embedded systems, VLSI design, computer architecture, and software engineering are also provided.

By tailoring the program to align student interests with faculty strengths, faculty-student interaction is enhanced as students receive better academic and career guidance. All electrical engineering areas of specialization, as well as computer engineering, provide multiple engineering design experiences throughout professional school. In addition to laboratory introduction to research, separate instructional laboratories grant opportunities for hands-on experience in areas such as microprocessors, digital logic design, electronics, electrical machinery, networks, instrumentation, and electromagnetics. Laboratories also serve to emphasize concepts learned in the classroom while students participate in engineering design.

Engineering design laboratories require students to solve open-ended problems in a manner that demonstrates the students’ ability to apply fundamental concepts, creativity and imagination, to solve realistic problems of practical importance. These problems have several possible solutions, and students must choose an acceptable approach and demonstrate that the desired outcomes have been met.

The capstone design experience is a two-course sequence typically taken during the student’s last two semesters in the program. The courses integrate analysis, design, and other skills the students have developed during their course of study. Teamwork, communication skills, and the complete engineering design process, from problem definition to prototype, presentation and documentation, are emphasized. Student teams receive individual project mentoring from an appropriate faculty member who provides project management and supervision. The capstone experience concludes with a formal public design demonstration, oral presentation, and written documentation. The new ECE Design Commons, an advanced design laboratory available to all students in electrical engineering and computer engineering, provides state-of-the-art capabilities for design, prototyping, testing and diagnostics of advanced hardware and software systems.

The BS degree in electrical engineering is accredited by the Engineering Accreditation Commission of ABET under the criteria for electrical, computer, and similarly named engineering programs. The BS degree in computer engineering is a relatively new degree program which first became available in 2008. This program is also accredited by the Engineering Accreditation Commission of ABET under the criteria for electrical, computer, and similarly named engineering programs.

Graduate Programs

The School of Electrical and Computer Engineering offers two graduate degree programs, both in electrical engineering: Master of Science and Doctor of Philosophy. Specialized MS degree options in 1) control systems and 2) optics and photonics are also available, as are interdisciplinary graduate degrees in several specialties. These graduate degree programs are flexible in course selection and emphasis.

The Master of Science degree emphasizes advanced design, development, and research methods for high technology and is designed for students interested in careers in industry and government or who want to prepare for advanced study through the PhD. This degree incorporates additional advanced course work and campus creative activities that allow students to expand their knowledge in electrical and computer engineering, while including depth in one or more advanced areas.

The Doctor of Philosophy degree is designed to prepare students for high-level research and development positions in industry and government and for the teaching profession in engineering. This degree is distinguished by an emphasis on research and the incorporation of a doctoral thesis.

Students may select course work and participate in research and design projects in the following areas:

• communication systems and networks;
• control systems;
• computer architecture and arithmetic;
• electromagnetics;
• microsystems and nanoelectronic:
• photonics and electro-optics;
• digital signal, image, and video processing;
• very large scale integration (VLSI);
• energy and power;
• bioengineering.

Students may also select a multidisciplinary program that crosses departmental lines and emphasizes the application of electrical and computer engineering and systems theory to complex problems. These applications serve to promote the interaction of engineering systems and technology with social, economic, and environmental processes. Multidisciplinary opportunities exist in control systems, biomedical engineering, photonics, and nanotechnology and materials.

Admission Requirements. Admission to the Graduate College, as described under “General Regulations” in the “Graduate College” section of the Catalog is the first step for those students proceeding toward advanced degrees.

Graduates must meet the high standards of both a new college program and similarly named engineering programs accredited by the ABET. The Graduate College of the University of Oklahoma is a member of the association that accredits programs in all areas of engineering. These requirements are described in detail in the “Graduate College” section of the Catalog.
the application.

Grades from non-engineering fields such as mathematics, physics and computer science are also admitted to the School of Electrical and Computer Engineering MS and PhD graduate programs if an evaluation of their transcripts indicates they are prepared to succeed in graduate-level course work in electrical and computer engineering, or can be expected to do so after a reasonable amount of remedial course work. This condition, 780 applicants, is primarily limited to graduates of unaccredited engineering programs and engineering technology programs.

Degree Requirements. The Master of Science degree is awarded to those students who successfully complete an approved plan of study under one of two possible options. If a thesis is written, 30 credit hours are required, including six hours credit for the thesis. If no thesis is written, 33 credit hours are required, including at least two hours that include an approved creative activity. To be approved, a plan of study will include, as a minimum, 18 hours of 5000-level courses in electrical and computer engineering. Most plans of study include additional 5000-level courses, depending upon the background and particular educational goals of the student, and the minimum stated above is allowed only when a specific interdisciplinary plan of study is approved by the faculty. Each student is encouraged to include courses in supporting disciplines such as mathematics, computer science, statistics, business or other engineering fields. As mentioned above, some remedial work in undergraduate electrical and computer engineering may be required in addition to the 33-33 hours specified above.

The Doctor of Philosophy degree is granted in recognition of high achievement in scholarship in course work selected from the broad field of electrical and computer engineering and an independent investigation of a research problem in a chosen field that results in a contribution to knowledge, as presented in a dissertation. For this degree the Graduate College requires a minimum of 90 credit hours for acceptable academic work beyond the bachelor’s degree, including credit for the dissertation.

The School of Electrical and Computer Engineering also participates in several interdisciplinary degree programs. (See “Graduate Programs” under “Industrial Engineering and Management,” and “Telecommunications Management” in the “Graduate College” section of the Catalog.)

General Engineering
Raman P. Singh, PhD—Professor, C.F. Corkard Chair, and Associate Dean for Academic Affairs

The School of General Engineering administers common engineering courses, a series of courses in legal studies, engineering minor degrees in nuclear and petroleum engineering, and graduate program in technology management.

Master of Science in Engineering Technology Management
Camille De Yong, PhD—Director
Brenda L. Johnson, MS—Assistant Director

OSU’s Master of Science in Engineering Technology Management is a rigorous degree program designed specifically for experienced engineers and scientists who are interested in accelerating their management careers. The curriculum combines academic coursework with the latest business practices and can be tailored to meet an individual student’s needs. Managing today’s global organizations requires a complex set of knowledge and skills. Effective planning, selection, implementation and management of technology, and the creativity and leadership essential to make things happen. Hence, industrial engineering is the most people-oriented discipline within the engineering family. Industrial engineers are trained to think in both broad and specific terms. Industrial engineers define, design, build, operate, and improve production processes that convert resources to products effectively (e.g., high quality), efficiently, and at high productivity, and safely.

People are the fundamental component of production systems—people provide the creativity and leadership essential to make things happen. Hence, industrial engineering is the most people-oriented discipline within the engineering family. Industrial engineers are trained to think in both broad and specific terms.

Practical understanding of business parameters as well as physical and social parameters within production systems. This breadth allows industrial engineers to function effectively in a wide spectrum of activities ranging from strategic business planning to detailed task design. The wide-angle vision of industrial engineering provides career flexibility, leading to high-level leadership or specialized technical responsibilities.

Industrial engineers are in high demand in manufacturing organizations (e.g., automotive, electronics, medical, and food manufacturers), service enterprises (e.g., hospitals, banks, airlines, and consulting groups), and governmental organizations (e.g., public service and regulatory organizations).

The School of Industrial Engineering and Management’s vision is to be internationally recognized by industry and academia for excellence in research, outreach and service. Its mission is to discover, verify, integrate and transfer knowledge and methodologies relating to enterprise design and management, information technology, and modeling and optimization for the benefit of students, research sponsors and the technical community. The faculty, students and staff work together to build and maintain learning and mentoring environments where:

• Innovative practices are developed, tested and validated.
• Knowledge and practices are shared.
• Each individual develops to his or her full potential.
• Professional ethics are practiced at all times.

Educational Objectives and Outcomes. Objectives: Within a few years after graduation, industrial engineering program graduates will become professionals, managers or leaders in a wide variety of industries and apply discovery, problem solving, leadership, and management skills for the benefit of the organization and society at large.

Outcomes: Graduating baccalaureate students possess an understanding of fundamental industrial engineering and management concepts, methodologies and technologies as demonstrated by:

• An ability to apply knowledge of mathematics, probability and statistics, science, engineering, engineering management and engineering economy.
• An ability to design and conduct experiments involving risk and uncertainty, as well as to analyze and interpret data.
• An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
• An ability to function on multi-disciplinary teams.
• An ability to identify, formulate and solve engineering problems involving physical, human and economic parameters.
• An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a global economic, environmental and societal context.
• A recognition of the need for, and an ability to engage in, lifelong learning.
• A knowledge of contemporary issues and the role of the human in enterprise activities.
• An ability to use the techniques, skills and modern engineering tools necessary for industrial engineering and management practice.

The curriculum consists of three primary parts: (1) general studies, (2) core engineering, and (3) professional school topics. General studies consist of courses such as math, statistics, chemistry, physics, English, behavioral science, history, humanities, and arts. Core engineering courses consist of implementing materials science, electrical, electronics, computer science, statistics, economics, decision making, physical, human and economic parameters. Professional school courses consist of topics such as systems thinking and analysis in engineering, economic analysis, manufacturing processes, computer-aided modeling, work analysis, operations research, quality control, experimental design, facility location and layout, management and leadership, production control, system simulation modeling, information systems, ergonomics and human factors, and energy and water management. A capstone design experience, working with a real-world organization, integrates classroom and lab work together in the senior year. Details regarding degree requirements are available in the Undergraduate Programs and Requirements publication. The IE&M program is accredited by the Engineering Accreditation Commission
Admission to the Graduate College is required for engineering and management courses with work in other branches of enterprise systems and supply chains. Students may complement industrial considerations pertinent to organizations.

Instruction in management embraces both qualitative and quantitative methods in integrated course content as well as instructional delivery. Professional responsibility and ethical behavior are introduced and reinforced throughout the curriculum. Additionally, the need for lifelong learning after graduation is stressed.

Graduate Programs

The School of Industrial Engineering and Management offers graduate programs leading to the Master of Science in Industrial Engineering and Management degree and the Doctor of Philosophy degree.

The Master of Science degree is characterized by a higher degree of technical specialization in a particular field of study (beyond a BS degree). This degree program is designed to prepare students for professional practice that may include research or consulting components. The Master of Science degree is especially attractive to industrial engineering graduates, engineering graduates from other disciplines, and many science majors. The MS degree includes a strong technical component and an orientation to business and engineering management that is complementary to a technical background.

The Doctor of Philosophy degree is designed to position the student on the leading edge of knowledge in the profession of industrial engineering and management engineering. It is intended to prepare students for highly specialized positions, such as research and consulting in industry, government and service organizations, and for teaching or research positions in colleges and universities.

Advanced degree programs are designed with major emphasis in fields of interest such as engineering management, manufacturing systems, operations research, quality and reliability, facilities and energy-management, and enterprise systems and supply chains. Students may complement industrial engineering and management courses with work in other branches of engineering, as well as economics, business administration, computer science, statistics, mathematics, psychology, and sociology.

Admission Requirements. Admission to the Graduate College is required of all students pursuing the MS or PhD degree. Graduation from an industrial engineering curriculum with scholastic performance distinctly above average qualifies the student for admission to the School of Industrial Engineering and Management as a candidate for the master’s and doctorate degrees. Graduates from related disciplines may be admitted if an evaluation of their transcripts and other supporting materials by the School of Industrial Engineering and Management indicates that they are prepared to complete their graduate-level coursework in industrial engineering, or be expected to do so after a reasonable amount of prerequisite work.

All applicants must submit GRE scores (minimum 145 in Verbal Reasoning and 160 in Quantitative Reasoning). In addition, the Graduate College may require certain international applicants to submit TOEFL scores.

Degree Requirements. The Master of Science degree in industrial engineering and management requires the completion of at least 30 credit hours beyond the bachelor’s degree, including a research thesis of six credit hours. A 33-semester-credit-hour option is also permitted and must include a three-credit-hour creative component. The creative component requirement can be met by completing a three-credit-hour independent study project or a three-credit-hour course approved by the student’s committee.

The Doctor of Philosophy degree requires the completion of at least 90 credit hours beyond the bachelor’s degree or 60 credit hours beyond the master’s degree; including a minimum of 18 credit hours of dissertation research and a minimum of 30 credit hours of course work beyond the master’s degree.

The School of Industrial Engineering and Management also participates in the Master of Science in Engineering and Technology Management program. Current IE&M program information can be found on the School website http://iem.okstate.edu.

Materials Science and Engineering

Raj N. Singh, PhD—Williams Company Distinguished Chair, Professor and Head

The field of materials science and engineering is expanding into a period of unprecedented intellectual challenges, opportunities and growth. Products created using materials science and engineering research contribute to the economic strength and security of not only the state, but also the country.

The School of Materials Science and Engineering is located at OSU-Tulsa’s Helmerich Research Center, a premier facility which places the College of Engineering, Architecture and Technology in a unique position to conduct world-class technology, research and technology development and transfer in advanced materials of strategic importance to our nation. Current research programs focus on materials for energy technologies, bio-materials for medical technologies, advanced materials for aerospace and defense, and materials for electronics and control technologies.

Program Educational Objectives. OSU is currently offering only a graduate program in Materials Science and Engineering:

Graduate Programs. The School of Materials Science and Engineering offers programs leading to the Master of Science and Doctor of Philosophy. The Master of Science program has been approved and the approval for the Doctor of Philosophy program is expected by fall 2014. A program of independent study and research on a project under the direction of a member of the Graduate Faculty will be satisfactorily completed by all graduate students. For the Master of Science candidate, the project may result in a thesis. For the Doctor of Philosophy candidate, the project will result in his or her dissertation.

At the Helmerich Advanced Technology Research Center (HTRC) at OSU, four research focus areas have been identified by industry leaders in and around Tulsa, with Materials Science and Engineering (MS&E) as the overall umbrella. These focus areas include: Materials for Energy Technologies, Bio-Materials for Medical Technologies, Advanced Materials for Aerospace, and Materials for Electronics and Control Technologies.

Admission Requirements. Admission to either the Master of Science or Doctor of Philosophy degree program requires graduation from a materials science and engineering or related curriculum approved by the ABET or a recognized equivalent from any international program.

Students with related undergraduate degrees, such as physics, engineering physics, applied physics, etc. can be admitted conditionally, subject to completing prescribed Materials Science and Engineering program core courses. Admission is competitive based on undergraduate GPA, GRE and TOEFL (for international students), statement of interests, experience and recommendations.

The Master of Science Degree. The M.S. degree in MS&E will have thesis and creative component (non-thesis) options. The thesis option will require a total of 30 credit hours, which includes 24 hours of formal coursework (regularly scheduled classes, and not independent study) and 6 hours of thesis. The non-thesis option or creative component will require a total of 35 credit hours, which includes 33 hours of formal coursework (regularly scheduled classes, and not independent study) and 2 hours of creative component/project. The main difference between the two options is that in the thesis option, the student conducts independent research while in the creative component option, the student conducts critical review of the literature on an advanced degree of interest to the MS&E program. Both options require a professional report/thesis and an oral presentation. The student will take 15 hours of core courses (required) with the remainder of the hours being MS&E elective courses or their equivalent (to be approved by MS&E graduate coordinator and the student’s advisor or has been considered as an equivalent MS&E course). The student must complete no less than 21 hours of MS&E 5000- and 6000-level courses through Oklahoma State University. For both options the courses taken must include: MSE 5013, MSE 5033, MSE 5043 and MSE 5693.

The Doctor of Philosophy Degree. The general credit requirement is a minimum of 72 credit hours beyond the BS degree, including at least 36 hours of credit for research and at least 30 hours of class work. Once approved, it is expected that the courses must include MSE 5013, MSE 5033, MSE 5043 and MSE 5693. Each student is responsible for consultation with his or her advisory committee in preparing the study plan.

http://iem.okstate.edu
Mechanical and Aerospace Engineering

Daniel E. Fisher, PhD—Albert H. Nelson, Jr. Endowed Chair in Engineering, Professor and Head

No other profession unleashes the spirit of innovation like Mechanical Engineering and Aerospace Engineering. From research to real-world applications, mechanical and aerospace engineers discover how to improve lives by creating bold new solutions that connect science to life in unexpected, forward-thinking ways. Few have such a direct and positive effect on everyday lives and we count on mechanical and aerospace engineers, and their imaginations, to help us meet the needs of the 21st century.

Mechanical and aerospace engineers know that life takes engineering, and that their disciplines provide freedom to explore, shape the future, encompass an enterprising spirit, and call for limitless imagination. Engineering makes a world of difference and is essential to our health, happiness, and safety. Engineering and aerospace engineers discover how to improve the quality of life, from fuel cells to nuclear power plants, gas turbine engines to interplanetary space vehicles, artificial limbs to life support systems, robotic manipulators to complex automatic packaging machines, precision instruments to construction machinery, household appliances to mass transit systems, and air conditioning systems to off-shore drilling platforms, and powered home and garden appliances to vehicles of all types. In virtually every organization where engineers are employed, mechanical engineers will be found.

The BS degree program in mechanical engineering, together with the presidential option—Aerospace engineering, is accredited by the Engineering Accreditation Commission of the ABET under the criteria for mechanical and similarly named engineering programs.

Aerospace engineering is concerned with the science and technology of flight, and the design of air, land and sea vehicles for transportation and exploration. This exciting field has led people to the moon and continues to lead in the expansion of frontiers deeper into space and into the ocean’s depths. Because of their unique backdrops in aerodynamics and lightweight structures, aerospace engineers are becoming increasingly involved in solving some of society’s most pressing and complex problems, such as high-speed ground transportation and pollution of the environment.

The BS degree program in aerospace engineering is accredited by the Engineering Accreditation Commission of the ABET under the criteria for aerospace and similarly named engineering programs.

The mission of the School of Mechanical and Aerospace Engineering is to support the mission of Oklahoma State University by:

- Providing the best possible education to students, grounded in engineering fundamentals, so that graduates can be competitive in employment and advanced studies and are prepared for a lifetime of continuing development;
- Engaging students in basic and applied research, making significant, innovative contributions to the engineering and science base on which industrial competitiveness is built;
- Preparing graduates to solve problems of both immediate and long-range concern to society and to support our instructional programs;
- Providing extension and public service activities where constituents’ needs and School resources are compatible; and
- Emphasizing the practice of engineering and the needs of the State of Oklahoma in each of the above activities.

Program Educational Objectives: OSU BSME and BSAE graduates will:

1. Be able to apply their knowledge of engineering to solve complex problems using fundamental principles in combination with modern engineering tools and methods.
2. Be able to use engineering principles to conceptualize, create, model, test, and evaluate designs within a context of local and global needs.
3. Be able to productively function as members of multidisciplinary teams and communicate effectively.
4. Be lifelong learners who understand evolving technical and societal issues as well as their ethical responsibilities that impact their engineering profession.

Student Outcomes. The outcomes for students graduating from the mechanical and aerospace engineering BS programs are:

- an ability to apply knowledge of mathematics, science, and engineering to the mechanical and aerospace engineering disciplines;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- an ability to function on teams, some of which require consideration of multiple disciplines;
- an ability to identify, formulate, and solve engineering problems;
- an ability to apply principle of engineering and professional and ethical responsibility;
- an ability to communicate effectively;
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context; (i) a recognition of the need for, and an ability to engage in, life-long learning; (j) a knowledge of contemporary issues; (k) an ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

For the BSME Program, there are three additional outcomes: ME1 – an ability to apply principles of engineering, basic science and mathematics (including multivariate calculus and differential equations); ME2 – an ability to model, analyze, design, and realize physical systems, components or processes; and ME3 – be prepared to work professionally in either thermal or mechanical systems areas while taking courses in each area. For the BSAE Program, there are three additional outcomes: AE1 – knowledge of the following aeronautical topics: aerodynamics, aerospace materials, structures, propulsion, flight mechanics, and stability and control; AE2 – knowledge of some of the following aeronautical topics: orbital mechanics, space environment, attitude determination and control, telecommunications, space structures, and rocket propulsion; and AE3 – graduates must have design considerations which includes aeronautical topics.

Because mechanical engineering is perhaps the broadest of all engineering disciplines, the program provides not only excellent grounding in all engineering fundamentals, but also allows some flexibility in selecting controlled technical electives to suit the student’s interests. In this selection, no one area may be underspecialized at the expense of another. For those entering engineering, biomedical engineering, and premedical programs, prescribed course work provides students with more focused development. Graduates are fully competent as mechanical or aerospace engineers, with abilities in design, and in cultivating knowledge in their areas of concentration.

As a fundamental component of all BS programs, engineering design is strongly emphasized in the junior and senior years but is integrated throughout the curriculum. Most MAE courses at the 3000 and 4000 levels include some design component, ranging from a minimum of one-half to a maximum of four credit hours of design content. Each professional school builds upon the preceding mechanical and aerospace engineering courses to develop in the student the ability to identify and solve meaningful engineering problems. The course work is specifically sequenced and interrelated to provide design experience at each level, leading to progressively more complex, open-ended problems. The course work includes sensitizing students to socially-related technical problems and their responsibilities as engineering professionals to behave ethically and protect occupational and public safety. The program culminates in a senior-year design course in which students integrate analysis, synthesis, and other abilities they have developed throughout the earlier portions of their study into a capstone experience. The design experiences include the fundamental elements and features of design with realistic constraints such as economics, safety, reliability, social and environmental impact, and other factors. As a result of these experiences, students are able to design components, systems and processes that meet specific requirements, including such pertinent societal considerations as ethics, safety, environmental impact and aesthetics. Students develop and display the ability to work as a multidisciplinary team, and to apply the tools necessary to specific studies and to analyze experimental results to draw meaningful conclusions.

An integral part of this educational continuum, from basic science through comprehensive engineering design, are learning experiences that facilitate the students’ abilities to function effectively in both individual and team environments. The program also provides every graduate with adequate learning experiences to develop effective written and oral communication skills. State-of-the-art computational tools are introduced and used as a part of their problem-solving experiences. Finally, the students’ experience in solving ever-more-challenging problems gives them the ability to continue to learn independently throughout their professional careers.

The broad background and problem-solving ability of mechanical and aerospace engineers make them suited to engage in one or more of the following activities: research, development, design, production, operation, management, technical sales and private consulting. Versatility is their trademark. A bachelor’s degree in mechanical or aerospace engineering is also an excellent background for entering other professional schools such as medicine, dentistry, law or business (MBA). The premedical option in mechanical engineering is available for students wishing to enroll in medical school, and the premedical option prepares students to work in the biomedical engineering field, or continue on to graduate study in this area.

In the professional school, (essentially the junior and senior years of the program) mechanical and aerospace engineering students extend their study of the engineering sciences and lead to their engineering and science disciplines and analysis tools to the solution of real technological problems of society. Some design courses involve students in the solution of authentic, current and significant engineering problems provided by industrial firms. Students may also help smaller firms that need assistance with the development of new products.

The student designs, with the guidance of an adviser, an individualized program...
of study consistent with his or her interests and career plans. Some students terminate their studies with a bachelor's degree, while others receive one of several graduate degrees.

Graduate Programs
The School of Mechanical and Aerospace Engineering offers programs leading to the degree of Master of Science in Mechanical and Aerospace Engineering, and the degree of Doctor of Philosophy in Mechanical and Aerospace Engineering. Both of these degrees offer options in Unmanned Aerial Systems and prepare the graduate for research and development positions in industry and government, or for the teaching profession in engineering. They are distinguished by the incorporation of a research component.

Students may select course work and participate in research or design projects in the following areas: aerodynamics, aeroelasticity, biomechanical engineering, design, computational mechanics, heat transfer dynamic systems and controls, fluid mechanics, materials, manufacturing processes, refrigeration, solid mechanics thermal and HVAC systems, unmanned aerial systems, and web handling systems. Students are encouraged to take courses in mathematics and science and in other fields of engineering which fit into their programs.

Admission Requirements. Admission to the Graduate College is required of all students pursuing the MS or PhD degree. Graduation from a mechanical or aerospace engineering curriculum accredited by the ABET, with scholastic performance distinctly above average, qualifies the student for admission to the School of Mechanical and Aerospace Engineering as a candidate for the MS and PhD degrees. Graduates from disciplines other than mechanical or aerospace engineering may be admitted if an evaluation of their transcripts by the School of Mechanical and Aerospace Engineering indicates they are prepared to take graduate-level course work in mechanical or aerospace engineering, or can be expected to do so after a reasonable amount of prerequisite work.

Degree Requirements. All degree programs follow an approved plan of study designed to satisfy the individual goals of the student, while conforming to the general requirements of the School of Mechanical and Aerospace Engineering and the Graduate College.

The Master of Science degree program with the thesis option requires 24 credit hours of approved graduate-level course work, and a suitable research thesis of six credit hours. The non-thesis option requires 35 credit hours of which two must be for an acceptable, directed research activity that results in a written and oral report to the faculty.

The Doctor of Philosophy degree requires a minimum of 60 credit hours beyond the master’s degree, including a dissertation for which no more than 30 credit hours may be awarded.

School of Architecture
Randi Setzinger, MArch, AIA—Professor and Head
The School of Architecture, founded in 1909, offers professional degree programs in both architecture and architectural engineering. The integration of these programs through shared faculty, facilities and course work is a major strength of the School. It is one of the few such integrated programs in the United States, and one which produces graduates who are particularly prepared for the integrated team processes used in professional practice. The School of Architecture is a primary unit in the College of Engineering, Architecture and Technology, and therefore benefits from excellent state-of-the-art resources which significantly extend the School’s professional programs. The program moved into a brand new facility, the Donald W. Reynolds School of Architecture Building in 2009, and at the same time celebrated its centennial as a School of Architecture.

The School of Architecture is dedicated to providing a high quality and focused professional education to students whose career goals are to enter the practice of architecture or architectural engineering. Professional and liberal study electives provide opportunities for educational breadth or depth and a possible double degree in both architecture and architectural engineering and a minor in Architecture. Oklahoma State University graduates are recruited by the leading architectural and architectural engineering firms both in Oklahoma and nationally. The Oklahoma State University School of Architecture is particularly proud of having among its alumni many of the leaders of the best firms in the country, an AIA Gold Medalist (the highest award given to an architect), and presidents of the American Institute of Architects (AIA) and the National Architectural Accreditation Board (NAAB).

Mission and Goals. Architecture is the difficult and complex art and science of designing and building a setting for human life. It is unique among today’s professions in that the successful practice of architecture depends on a creative process in which the human needs, the environment, and the program all share, of traits normally considered less than compatible: human empathy, artistic creativity, technological competence, and organizational and economic acumen. In contrast to other fine arts, architecture is rarely self-generated; it is rather a creative response to a stated or perceived human need. It must, therefore, be more user-oriented than fine art alone and more humane than pure science. Its design solutions must avoid the total subjectivity and detachment of other arts while striving to be functionally, technically and economically objective and sound. Yet, in a seemingly insoluble contradiction, the keenest technological and economic functionality will fall far short of becoming architecture unless it also strongly appeals to human spiritual and emotional values. When one thinks of the environment, one cannot help but see or recall architectural images: pyramids in Egypt, Greek and Roman temples, gothic cathedrals, medieval castles, industrial cities, modern skyscrapers and dwellings or entire cities which significantly express the culture and values of the people who live or lived there. The mission of the School of Architecture is to prepare future architects and architectural engineers to make vital contributions to humanity through the creation of architecture. The vision of the school is to be nationally recognized for outstanding professionally focused programs in architecture and architectural engineering with strengths in design and the collaboration between architecture and architectural engineering.

The School of Architecture endeavors to instill in each individual sensitivity to human needs, a genuine concern for quality, integrity and high ideals, a positive attitude for life-long learning, and an appreciation for one's own self-esteem.

The School’s primary goal is to provide excellence in professional education for students preparing to enter the private practice of architecture or architectural engineering. This professional focus is to educate not only qualified candidates for the degree, but graduates who, during their careers, will be licensed professionals and will assume positions of leadership within the profession and society.

Accreditation. The School of Architecture offers two separately accredited professional degree programs. The Bachelor of Architecture degree, BArch, is accredited by the NAAB. The Bachelor of Architectural Engineering degree, BArchE, is accredited by the the Accreditation Board for Engineering and Technology (ABET http://www.abet.org) as an engineering program. Both programs require a minimum of five years of study to complete. In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB) is the sole agency authorized to accredit U.S. professional degree programs in architecture and recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The OSU School of Architecture offers an accredited, five-year, Bachelor of Architecture degree.

Bachelor of Architecture – 154 semester credit hours.

The next accreditation visit will occur in 2017.

Architecture. Architecture is the complex synthesis of creatively solving problems involving both art and science through the disciplined orchestration of image making, activity organization, technological applications, legal constraints, and budgetary parameters which together express culture, enhance quality of life and contribute to the environment.

Education in architecture consists of campus-oriented classroom and studio courses, as well as off-campus studies. It is conducted in an intellectual climate which stimulates inquiry, introduces principles and values, and teaches the disciplines necessary to work in collaboration with others. The goal of the program is the education of future leaders within the architecture profession. In the pre-professional portion of the architectural program (approximately two years of study), the focus is on the fundamental principles of design and technology supplemented by appropriate general education courses in English, social sciences and humanities. These courses allow students to assimilate a beginning knowledge base in architecture along with a broader liberal based component to their education. Students who demonstrate proficiency in this portion of the program by meeting a specific set of admission criteria are eligible for admission to the professional program in architecture.

The professional program in architecture (typically three years) builds systematically upon the knowledge acquired in the pre-professional curriculum. Students expand their design and problem-solving abilities through a sequential series of design studios informed by sequences of courses dealing with structure, systems and materials, building technology, the history and theory of architecture, and business and project management principles. In addition students fully utilize the computer as a design and communication tool in the problem-solving process.

The design studio is the center of the School’s educational program. It is the setting where students and faculty most closely work together, and where all aspects of a student’s design studio education, he or she is required to complete sequential courses in structures, architectural history/theory, technology, and management that work in correlation with the design studio sequence.

The program has long been known as one of the strongest professional programs in the United States. OSU graduates are consistently offered
employment opportunities in many of the best architectural offices in Oklahoma and throughout the United States. The program is fully accredited by the National Architectural Accreditation Board.

Architectural Engineering. Architectural engineering is a profession that combines the art and science known as architecture with a detailed background in fundamental and applied engineering principles. In its broadest sense, architectural engineering involves the creative application of science and technology to the design of structures meant for human occupancy. Architectural engineering differs from architecture in its focus upon the design of elements, systems and procedures for buildings, rather than the design of buildings themselves. Architectural engineers practice in a wide variety of professional engineering settings such as consulting firms, architectural firms, industrial or commercial organizations and governmental agencies.

The objective of the Bachelor of Architectural Engineering program is to provide basic and professional education to engineering students in building-related structural engineering. OSU graduates possess broad-based knowledge, skills, and judgment that prepare them to succeed in the profession of architectural engineering or in further studies at the graduate level. The program is designed to prepare students to contribute to society as professional engineers dealing with analysis, design and related activities within the construction industry. The program utilizes the broad resources of the University to exploit a close relationship with the architectural program and to provide in-depth understanding of the professional sensitivities to other less technical concerns related to the building environment faced by architectural engineers.

The primary focus of the architectural engineering program at OSU is the safe and economical design of structural systems used in buildings. These structural systems must withstand the various forces of nature such as gravity, winds and earthquakes, as well as the forces of man. These systems require a working knowledge of the mechanics of those materials commonly used for building structures such as steel, timber and reinforced concrete.

The study of architectural engineering is an integrated mix of liberal studies, design and technical education. Architectural engineers need to be able to conceptualize aesthetic issues and design complex technical systems. In the pre-professional portion of the architectural engineering program (approximately two years of study), the focus is on the underlying scientific and mathematical principles of engineering and the basic design principles of architecture supplemented by appropriate general education courses in English, social sciences and humanities. These courses allow students to assimilate a beginning knowledge base in architecture and engineering along with a broader liberal based component to their education. Students who demonstrate proficiency in this portion of the program by meeting a specific set of admission criteria are eligible for admission to the professional program in architectural engineering.

The professional program in architectural engineering (typically three years) builds systematically upon the scientific and architectural knowledge acquired in the pre-professional curriculum. Students acquire detailed structural and architectural knowledge and problem-solving abilities through a series of progressively more specialized and comprehensive courses and studios. Each architectural engineering course builds upon the preceding architectural engineering courses and develops in the student the ability to identify and solve meaningful architectural engineering problems. The course work is specifically sequenced and interrelated to provide design experience at each level, leading to progressively more complex, open-ended problems. This course work includes sensitizing students to socially-related technical problems and their responsibilities as engineering professionals to behave ethically and protect public safety. The program culminates in a fifth year course in which the students integrate analysis, synthesis and other abilities they have developed throughout the earlier portions of their study into a capstone experience. An integral part of this educational continuum from basic knowledge through comprehensive architectural engineering design are learning experiences that facilitate the students’ abilities to function effectively in both individual and team environments. Students are exposed to a wide variety of problems dealing with contemporary issues in an international context. Moreover, the program provides every graduate with adequate learning experiences to develop effective written and oral communication skills. State-of-the-art computational and CAD tools are introduced and used as a part of the students’ problem-solving experiences. Finally, the students’ experience in solving ever-more-challenging problems gives them the ability to continue to learn independently throughout their professional careers.

Architectural Engineering Educational Objectives. The educational objectives expected of Program graduates a few years after graduation are as follows. Graduates will:

• utilize their education in architectural engineering to contribute to society as licensed professional engineers.

• excel in their careers, displaying leadership, initiative, and broad-based knowledge skills.

• have displayed a sensitivity to human needs and other less technical concerns related to the building environment.

• have utilized the close relationship with the architecture program to develop a special ability to collaborate with and relate to architecture.

• have a positive attitude for life-long learning.

The architectural engineering program has adopted the following program outcomes:

a) An ability to apply knowledge of mathematics, science and engineering.

b) An ability to design and conduct experiments, as well as to analyze and interpret data.

c) An ability to design a system, component, or process to meet desired needs.

d) An ability to function on multi-disciplinary teams.

e) An ability to identify, formulate, and solve engineering problems.

f) An understanding of professional and ethical responsibility.

gh) An ability to communicate effectively.

h) The broad education necessary to understand the impact of engineering solutions in a global and societal context.

i) A recognition of the need for, and an ability to engage in life-long learning.

j) A knowledge of contemporary issues.

k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

The program outcomes were adopted with the concept that they would provide students with the educational experience necessary to successfully achieve the longer term program educational objectives.

Undergraduate Curriculum. The programs in architecture and architectural engineering are five years long and offer the professional degrees of Bachelor of Architecture and Bachelor of Architectural Engineering.

Undergraduate Admission. Students who satisfy the University admission requirements are eligible to enroll for the first two years of the program (pre-architecture). Upon completion of these two years, the best qualified students are selected, upon application, by the School for admission to the upper division (professional program). Admission is based upon academic achievement and professional potential. Admission criteria are subject to annual review by the School and may be modified directly from the School.

Transfer students are required to furnish transcripts and course descriptions for previous college courses, as well as examples of previous studio work. Evaluation and enrollment by the School is on a course-by-course basis for all transfer students.

General Education. At least 12 semester hours of basic science and mathematics can be counted toward General Education requirements, and some required course work in History and Theory of Architecture can be used for General Education credit.

Electives. Electives should be selected to comply with the appropriate undergraduate degree requirements for the program. (See 3.2 "Changes in Degree Requirements" in the "University Academic Regulations” section of the Catalog.) These requirements assure compliance with institutional and accreditation criteria.

Study Abroad. The School of Architecture is committed to preparing its graduates for the professional opportunities presented by the expanding global economy. As part of this preparation, the School offers a nine-week Summer European Study Program based in Rome, Italy. This program has been designed to supplement the required curriculum. Students study, in an organized and disciplined fashion, major examples of modern and historic European architecture, including urban issues. Both analytic and artistic sketching skills are the main tools developed in this course of study.

Experience has shown that the Summer European Study Program significantly increases a student’s level of maturity, independent thinking, and cultural and social awareness of others. Knowing the values and accomplishments of other cultures not only deepens and broadens knowledge and abilities; it also makes a student a better and more responsible citizen of his or her own country.

Faculty and Facilities. In keeping with the professional orientation of the School, the faculty have extensive experience as successful practicing architects and architectural engineers, as well as outstanding scholastic records. The diversity of the faculty is a strength.

The school moved into a new facility in 2009, the Donald W. Reynolds School of Architecture Building, which includes spacious design studios, a greatly expanded architectural library, day lighting lab, computer lab, classroom facilities and many other amenities. The Donald W. Reynolds School of Architecture received an AIA Oklahoma Honor Award recognizing its outstanding design in 2010.

Computers. All School of Architecture students enrolled in either the architecture or architectural engineering programs will be required to purchase a laptop computer as they enter the Professional Program (third year of the curriculum). Updated specifications for the computer and software will be provided each year.

Student Work. Projects submitted for regular class assignments may be retained by the School. All projects not retained will be available to the student.

Student Body. With the curriculum based upon extensive and personalized student-faculty interaction, the student-faculty ratio in studio courses is set at approximately 16 to one. Annual student enrollment is approximately 350
students.

Academic Advising. The College’s Office of Student Academic Services provides initial advisement for all pre-professional architecture students. Prior to application to the Professional School, advisement is provided by the School of Architecture.

Each student is personally advised in the planning and scheduling of his or her course work and is counseled and advised individually on matters of career choice, his or her activities at OSU, and on other academic matters. An academic file is created for each student at the time of initial enrollment.

Admission to Professional School. Students applying for admission to the Professional School must first meet the required criteria established for each program. Applicants will be selected based upon their performance in the First and Second Year Architecture and Architectural Engineering curricula. Particular courses in the curricula, which have proven to be good indicators of success in the two programs, will be factored with a multiplier to increase their influence in the selection procedure. To be considered for either program, applicants must:

1. Complete a minimum of 55 credit hours of coursework (applicable to the degree plan) prior to admission to professional school.
2. Complete the following required first and second year courses with a grade of ‘C’ or better:
   - For the Architecture program: ARCH 1112, ARCH 2003, ARCH 1216, ARCH 2116, ARCH 2216, ARCH 2263, MATH 2144, PHYS 2014, ENSC 2113, and ENGL 1113.
   - For the Architectural Engineering program: ARCH 1112, ARCH 2116, ARCH 2216, ARCH 2263, MATH 2144, PHYS 2014, ENSC 2113, ENSC 2143, and ENGL 1113.
3. Achieve a grade of “C” or better in all required ARCH prefix courses, substitutes for ARCH prefix courses, and prerequisites for ARCH prefix courses.
4. Achieve a minimum Selection Grade Point Average (SGPA) of 2.80. The Selection Grade Point Average (SGPA) will be calculated for each applicant by multiplying course credit hours by the multiplier, multiplying by the numerical course grade and dividing by the total factored hours.

For consideration of admission to the Architecture program, the following courses and multipliers will be used in calculating SGPAs: ARCH 1112 (x1 multiplier), ARCH 2003 (x1 multiplier), ARCH 1216 (x2 multiplier), ARCH 2116 (x2 multiplier), ARCH 2216 (x3 multiplier) ARCH 2263 (x1 multiplier), MATH 2144 (x1 multiplier), PHYS 2014 (x1 multiplier), ENSC 2113 (x1 multiplier), ENGL 1113 (x1 multiplier).

For the Architectural Engineering program the following courses are used in the SGPA calculation: ARCH 1112 (x1 multiplier), ARCH 1216 (x1 multiplier), ARCH 2116 (x2 multiplier), ARCH 2216 (x2 multiplier), ARCH 2263 (x1 multiplier), MATH 2144 (x2 multiplier), PHYS 2014 (x2 multiplier), ENSC 2113 (x3 multiplier), ENSC 2143 (x2 multiplier), ENGL 1113 (x1 multiplier).

Double Degree. Applicants wishing to enter into the Professional School in both the B.Arch and B.Arch Eng. degree programs must apply for both programs and be accepted to each, independent of the other.

Change of Program. Changing programs, Architecture to Architectural Engineering or vice versa, typically occurs via formal application and admission to the other program through the Professional School application and admission process.

Taking ARCH Prefix Courses: When Not Admitted to Professional School. Students not admitted to the Professional Schools may not enroll in any 3000 level or higher ARCH prefix course or ARCH 2203 without prior permission of the instructor and Academic Advisor.

Transfer Students. Students wishing to transfer into the Professional School of the OSU School of Architecture must apply for admission to the Professional School in the same manner as OSU students.

Completion of Required Pre-Professional School Courses. All students applying for admission to Professional School must satisfactorily complete all required courses for consideration by the end of the spring semester of the year of application.

Application and Notification Dates. Application for admission, readmission or transfer to the Professional School of Architecture and Architectural Engineering must be made by the last working day of April of the year of intended admission. Notification of selection decisions will normally be made soon after June 1st but not before a two week period after Grade Reports have been received by the School – if there should be ANY problem with a grade that may impact acceptance to the Professional Schools the student should contact the School immediately. Selected applicants must confirm acceptance of the offer of a position in the Professional School by the date indicated in the letter of offer.

Reapplication. Applicants not admitted may reapply for admission to the Professional School the following year; such applicants do not carry any priority or disadvantage but are included in the full application pool.
Construction Management Technology
Heather Yates, EdD, AC—Associate Professor and Program Director
The construction industry is the largest industry in the world. Leadership in this field requires a broad knowledge of labor, materials and equipment, capital and construction procedures. The interdisciplinary approach of the construction management technology program offers the student specialized course work in all phases of construction, designed to prepare him or her for responsible positions in industry.

The primary goal of the Department of Construction Management Technology (CMT) is to enhance the quality of the instructional program through effective management of the curriculum, teaching assignments and fiscal and physical resources. This goal includes providing instructional facilities, equipment and support services for faculty and students which maintain an excellent learning environment.

Program Educational Objectives. OSU Construction Management Technology graduates a few years after graduation will:

1. Solve problems typically found in the construction industry in construction engineering design, estimating, planning, scheduling and project management using mathematical, analytical, and scientific skills of engineering technology.
2. Successfully work in teams and communicate effectively in written, oral and graphical forms.
3. Continue life-long career and professional growth by actively interacting with local industries and participating in appropriate professional societies.

Faculty with excellent credentials, including a balance of formal education, teaching ability and appropriate industry experience, are recruited nationwide and are provided opportunities for individual professional development and regular contact with the industry. Faculty members are encouraged to become involved in extension and research programs relating to the department's areas of strength or growth and to serve the needs of continuing education within the industry, particularly in the southwestern construction community.

These needs and opportunities for service are assessed regularly through close cooperation with local and regional construction professionals and industry associations. An active Construction Management Advisory Board, representing a broad cross-section of the industry, meets regularly to offer support and guidance necessary to preserve uncompromising excellence.

The Construction Management Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org. The educational objectives of the Department of Construction Management Technology are consistent with those required by ETAC of ABET and are listed under "Division of Engineering Technology" in the Catalog.

Undergraduate Admission. Students who satisfy the University admission requirements are eligible to enroll for the first two years of the program in the lower division of the curriculum for construction management technology. In order to balance the number of students in the CMT upper division with available CMT resources, advancement to the CMT upper division is by application. Applications are due to the CMT Department no later than the last working day of April each year. To be eligible for program advancement, lower division students must have:

1. Completed 60 credit hours of course work counting toward the CMT degree.
2. Completed all of the required (shaded) courses on the Degree Requirement Sheet (these courses are also listed on the Calculation Work Sheet of the Application to Upper Division form).
3. Achieved a grade of 'C' or better in the following courses: CMT 1214, 2253, 2263, ACCT 2103, PHYS 1214, GENT 2323, MATH 2123, and CMT 2343. A substitution for any of these courses must meet the same 'C' requirement.
4. Achieved a minimum Selection GPA (SGPA) of 3.05.

Annually, students who meet these criteria for program advancement and have made a timely application for admission to the upper division will be admitted to the upper division of the CMT curriculum. The Selection Grade Point Average (SGPA) is a weighted GPA based upon specified lower division courses which have proven to be good indicators of student success in the program.

For consideration of admission to the upper division of the Construction Management Technology program, the following courses and multilbers will be used in calculating SGPA's: CMT 2343 (x2 multiplier), CMT 2263 (x3 multiplier), GENT 2323 (x3 multiplier), CMT 2253 (x2 multiplier), CMT 1214 (x2 multiplier), MATH 2123 (x2 multiplier), PHYS 1114 (x2 multiplier), SPCH 2713 (x2 multiplier), ENGL 1113 (x2 multiplier), PHYS 1214 (x1 multiplier), MATH 2133 (x1 multiplier), EET 1014 (x1 multiplier), and ACCT 2103 (x1 multiplier). Additional detailed information concerning admission to the upper division may be obtained directly from the CMT department.

Transfer students are required to furnish transcripts and course descriptions for previous classroom courses, as well as examples of previous academic work. Evaluation and enrollment by the CMT department is on a course-by-course basis for all transfer students.

The modern constructor must have a great deal of technical knowledge to keep abreast of rapidly changing equipment, materials and methods of construction. Specialized courses in estimating, surveying, structures, construction planning and scheduling, construction law and insurance, field and office management and computer applications help students with the background necessary for today's construction industry. These specialized courses, in addition to a blend of the basic sciences, business, and general studies, produce a well-balanced curriculum for students in construction management technology.

Special attention is given to computer applications in construction estimating, and the development of graphic, written and oral communication skills is emphasized throughout the curriculum.

Students with an interest in building structures may select courses in the "building" option of the construction management technology curriculum, which provides them with knowledge of highways, soils, foundations and other course work for a career in the heavy and industrial construction industry.

Students with an interest in civil engineering structures may select courses in the "heavy" option of the construction management technology curriculum, which provides them with knowledge of highways, soils, foundations and other course work for a career in the heavy and industrial construction industry.

The department attempts to identify and recruit highly qualified students who will benefit from the instructional program, and faculty members promote retention and ultimate graduation of construction management technology students through effective instruction and advisement. An active program of outcome assessment among students and their employers assures that the program continues to provide the academic training required for success. As one method of program assessment, each student, in his or her final semester, is required to sit for the Level I Cote Student Certification Examination. The student is responsible for the application process, including the appropriate fees. The test fee may be reimbursed to the student through the Office of University Assessment upon completion of the examination.

Graduates of construction management technology have shown the curriculum to be successful in their development as productive members of the construction industry, holding responsible positions as project managers, estimators, material and equipment salesperson, and construction managers at all levels.

Electrical Engineering Technology
Imad Abouzahr, PhD, PE—Associate Professor and Interim Head
The electrical engineering technology (EET) curriculum provides preparation for outstanding career opportunities not only in the electronics industry itself, but also in many other industries in modern industries that depend upon electronics for control, communications or computation. Outstanding opportunities exist for graduates to work in diverse areas of electronics and computers.

The work of an electrical engineering technology graduate may range from assisting in the design and development of new equipment in the laboratory, applying modern microprocessors in the field, to the operation or supervision of production operations or field representatives.

The program offers the Bachelor of Science in Engineering Technology degree with a major in Electrical Engineering Technology. An option in computers is also available. To meet diverse needs, the program is laboratory-oriented and provides a strong foundation of specialized mathematics and science courses in electronics technology and related technical areas, as well as courses in the area of communications, humanities, and the social sciences.

Program Educational Objectives. OSU Electrical Engineering Technology graduates a few years after graduation will:

1. Be prepared for life-long career and professional growth, students will interact with local industries and be active in their appropriate professional societies.
2. Demonstrate an awareness of the importance of ethical and social issues, and responsibilities associated with their engineering technology careers within diverse global environments.

The Electrical Engineering Technology major provides graduates the ability to enter the dynamic field of electronic hardware applications. The demand for graduates having electronic design and application skills remains important in the fields of control and communication. Graduates of this program will be prepared for these opportunities in industry that require considerable knowledge of the electronic industry.

The Electrical Engineering Technology—Computer option curriculum provides the preparation for graduates to enter the growing field of computer hardware and software. The demand for graduates having both computer hardware and software skills is quickly developing as the importance of automation, robotics, and artificial intelligence is recognized. Graduates of this program will be prepared for these opportunities in industry that require considerable knowledge of both computer hardware and software.


Fire Protection and Safety Engineering Technology
Qingheng Wang, PhD, PE—Assistant Professor and Acting Program Director

The fire protection and safety engineering technology (FPST) curriculum provides preparation for assessing and reducing the loss potential with respect to fire, safety, industrial hygiene, and hazardous material incidents. With respect to fire, reducing the loss potential might involve setting design criteria with a special emphasis on life safety or fire resistivity or specifying automatic detection or extinguishing systems. When considering safety, reducing accidents may require special protective equipment or clothing, or the redesign of machinery or processes. Reducing losses caused by environmental problems may require sampling air for contaminants, such as asbestos or toxic chemicals, or monitoring noise levels, and the development of procedures to address practical approaches to compliance with state and federal regulations. Addressing the problems of handling and disposing of hazardous chemicals, such as spill control, is often required. Managing risk and compliance with federal laws and regulations relative to occupational safety and health and hazardous materials is an increasingly important job activity.

The fire protection and safety engineering technology program began at Oklahoma State University in 1937. The demand by business and industry for loss control specialists has resulted in the evolution of the program into one that now places emphasis on fire protection, safety, and occupational/environmental health. The FPST program prepares graduates for careers in loss control. The loss control profession is segmented into three major areas: loss from fire, loss from physical accidents, and loss from environmental exposure.

The curriculum is designed to immediately introduce the student to studies in fire protection and safety. Therefore, students are able to measure their interest in a fire protection and safety career early in their academic program. The curriculum is rigorous in the areas of mathematics and the physical sciences. Two semesters of calculus are required as well as two semesters of chemistry and one semester of physics. Computer usage is an essential component of most fire protection and safety courses. Interested high school students should design their high school programs to prepare themselves for college level mathematics and science classes.

The program concludes with the Bachelor of Science in Engineering Technology degree in Fire Protection and Safety Engineering Technology.

Program Educational Objectives. OSU Fire Protection and Safety graduates a few years after graduation will:

1. Be employed in a technical or management position where the skills and knowledge of mechanical engineering technology are utilized.
2. Successfully apply mathematical, analytical, and technical skills to industrial problems, which may include the areas of design, manufacturing, graphical communications, and fluid power.
3. Within your employment environment, work proactively and productively as both members and leaders of teams.
4. Within your employment organization, communicate effectively in written, oral and graphical form.
5. Continue life-long learning by bringing new technology into their workplace, through participation and membership in professional organizations and/or through the continuation of professional studies.

Preparation for a specific industrial function is accomplished by selecting courses that emphasize a given design area, such as fluid power, mechanical design, computer-aided design (CAD) power generation, and air conditioning and heating. Because the program focuses on the application of engineering principles to the pragmatic solution of problems, graduates are immediately productive with minimal on-the-job training, thus increasing their value to industry. Graduates of the MET program are prepared to function in the areas of product design, testing and evaluation; product application and maintenance field engineering; and technical sales and liaison. Industries employing MET graduates include manufacturing companies of all types (aircraft, automobile, compressor and turbine, fluid power manufacturers and others); energy companies (such as natural gas, electrical power generation, and the oil and gas industries); and service companies (transportation industry, architecture and professional engineering firms, and those supporting the oil and gas industry).

Companies utilizing the talents of MET graduates are diversified in their products, as well as geographical location, thus providing a variety of choices in respect to both type of work and place of residence and in diverse industrial, governmental and educational institutions.


Mechanical Engineering Technology
Richard A. Beier, PhD, PE—Professor and Program Director

Mechanical engineering technology (MET) is the component of engineering that specializes in design and application. MET includes the broad areas of mechanical design, mechanical power and manufacturing. Mechanical engineering technology is applied in robotics, automotive manufacturing, computer-aided drafting and design, computer-aided manufacturing, agricultural machinery and processing, mining, shipbuilding, spacecraft electronics, manufacturing, food processing, aircraft metals and plastics production—nearly the entire spectrum of the industry. In the power areas, MET graduates are involved in vapor power cycles, gas power cycles, air conditioning, fluid power and power transmission. Manufacturing areas involving MET graduates include tool design, cost evaluation and control, plant operations, production planning and manufacturing methods.

An important element in MET is the use of laboratory experience as a teaching tool. The MET program has laboratories in fluid power, materials, fluid mechanics and applied thermal sciences, basic instrumentation, computer-aided design (CAD), and manufacturing. A senior capstone design course, composed of student teams, integrates the knowledge and skills learned during their course of study. Laboratories are equipped with the latest computer software that supports the design function. Where appropriate, laboratories with modern computer data acquisition systems and on-screen displays are available. In addition to the required mechanical engineering technology courses, students are provided a solid foundation in algebra, trigonometry and calculus, physics, chemistry, statics, dynamics, instrumentation, thermodynamics and computer science.

Program Educational Objectives. OSU Mechanical Engineering Technology graduates a few years after graduation will:

1. Be employed in a technical or management position where the skills and knowledge of mechanical engineering technology are utilized.
2. Successfully apply mathematical, analytical, and technical skills to industrial problems, which may include the areas of design, manufacturing, graphical communications, and fluid power.
3. Within your employment environment, work proactively and productively as both members and leaders of teams.
4. Within your employment organization, communicate effectively in written, oral and graphical form.
5. Continue life-long learning by bringing new technology into their workplace, through participation and membership in professional organizations and/or through the continuation of professional studies.

Preparation for a specific industrial function is accomplished by selecting courses that emphasize a given design area, such as fluid power, mechanical design, computer-aided design (CAD) power generation, and air conditioning and heating. Because the program focuses on the application of engineering principles to the pragmatic solution of problems, graduates are immediately productive with minimal on-the-job training, thus increasing their value to industry. Graduates of the MET program are prepared to function in the areas of product design, testing and evaluation; product application and maintenance field engineering; and technical sales and liaison. Industries employing MET graduates include manufacturing companies of all types (aircraft, automobile, compressor and turbine, fluid power manufacturers and others); energy companies (such as natural gas, electrical power generation, and the oil and gas industries); and service companies (transportation industry, architecture and professional engineering firms, and those supporting the oil and gas industry).

Companies utilizing the talents of MET graduates are diversified in their products, as well as geographical location, thus providing a variety of choices in respect to both type of work and place of residence and in diverse industrial, governmental and educational institutions.

College of Human Sciences

College Administration
Stephan M. Wilson, PhD, CFLE—Dean
Jorge Atiles, PhD—Associate Dean for Extension and Engagement
Christine Johnson, PhD—Associate Dean for Research and Graduate Studies
Shireeta Owney, PhD—Associate Dean for Academic Programs and Services
Ben Goh, EdD—Assistant Dean

Campus Address and Phone:
101 Human Sciences, Stillwater, OK 74078
405.744.5053
Website: humansciences.okstate.edu

Mission
The College of Human Sciences advances and applies knowledge while developing effective professionals, engaged citizens and visionary leaders who promote the physical, social and economic well-being of people.

Vision
The College of Human Sciences will be a world leader in the discovery and application of knowledge, preparing the next and upcoming generations of professionals who advance the quality of life.

The College of Human Sciences (COHS) is composed of three departments—Design, Housing and Merchandising; Human Development and Family Science; and Nutritional Sciences—and the School of Hotel and Restaurant Administration. Each science-based program focuses on the reciprocal relationship between people and their natural, constructed or social environments. Graduates pursue professional careers in business, health, communications, design, education, international service, research, social welfare and a variety of agencies, organizations and institutions. Pre-professional options and advisement are offered for students interested in pursuing graduate education in law, medicine and allied health fields, as well as within their major fields of study.

Core Values
Excellence - We are committed to excellence and continuous improvement in all our endeavors.
Integrity - We are committed to the principles of truth and honesty; we will be equitable, ethical and professional.
Service - We believe that serving others is a noble and worthy endeavor.
Intellectual Freedom - We believe in ethical and scholarly questioning in an environment that respects the rights of all to freely pursue knowledge.
Diversity - We respect others and value diversity of opinion, freedom of expression, and other ethnic and cultural backgrounds.
Stewardship of Resources - We are dedicated to the efficient and effective use of resources. We accept responsibility of the public’s trust and are accountable for our actions.
Creativity - We foster creativity and innovation utilizing world-class facilities and leading technologies to attract and support prestigious faculty and competitive graduates.

Further information may be found at humansciences.okstate.edu.

Accreditation
The Council for Interior Design Accreditation (CIDA) has accredited the undergraduate interior design program. The preprofessional and the production management apparel curricula is endorsed by the American Apparel and Footwear Association (AAFA) Education Foundation, making it one of only 13 approved programs in North America. The Child Development Laboratory-RISE is licensed by the Oklahoma Department of Human Services (DHS) and has received a Three Star Differential Quality Certification. The Child Development Laboratory-RISE is also accredited by the National Association for the Education of Young Children (NAEYC). Program approval has been granted to the Early Childhood Education Teacher Preparation program by the Oklahoma State Board of Education. In addition, the Early Childhood Education program is accredited by the National Council for the Accreditation of Teacher Education (NCATE). The Family and Consumer Sciences Education program has been accredited by the Oklahoma Commission for Teacher Preparation in cooperation with the National Council for Accreditation of Teacher Education (NCATE). The Marriage and Family Therapy program is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE). The Didactic Program in Dietetics and the Dietetic Internship at OSU are both currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, ph. 312.899.0040 ext 5400.

The Patricia Kain Knaub Center for Student Success
The Patricia Kain Knaub Center for Student Success is located in 101 Human Sciences on the south wing of the Human Sciences building. This location is the destination of every student and accompanying family arriving in the College. The Center provides a welcoming entry point and a continuing resource for a wealth of integrated academic programming and student services. A student interested in learning about the College of Human Sciences and its academic programs may schedule an appointment with the Coordinator for Prospective Student Services for information and a tour of the College facilities. Upon admission to the College of Human Sciences, students receive an array of services within the Center.

The Center for Student Success serves as a leader within the OSU system and to human sciences academic units nationally to elevate academic advising, the first-year experience, leadership development, and career development through highly engaging, purposeful and integrated programming that educates students to become intentional learners.

The Center offers the following comprehensive and integrated services to undergraduate students in the College of Human Sciences:
- Services to prospective students and their families that clearly articulate College of Human Sciences academic programs.
- Developmental academic advising, emphasizing a student-centered, holistic approach.
- A foundational first-year experience to facilitate transition of students to a large university.
- Strong leadership development experiences through the first-year experience courses, Freshman Scholar Leaders, Student Council, Ambassadors, and other student leadership organizations.
- Career development opportunities to effectively link educational experiences with career goals and career destinations.

The Career Consultant within the Center for Student Success is a certified Global Career Development Facilitator (GCDF) and provides services designed specifically for College of Human Sciences students. The College of Human Sciences Career Services offers students opportunities to explore traditional and nontraditional careers, complete career-related assessments, and enhance their professional presence in writing, in person and online.

Career development projects are integrated into the first-year experience courses required of all freshmen and transfer students. Outside of the classroom, students are provided opportunities to refine their job search materials, interview with practicing professionals who represent Human Sciences fields of study, participate in career empowerment workshops, learn of part-time job opportunities related to Human Sciences areas of study and identify internship experiences. The College of Human Sciences Career Services provides a link to OSU Career Services, making students aware of resources available throughout campus, including career fairs, career and skill assessments, on-campus interviews and an array of other valuable opportunities. The College of Human Sciences Career Services has an online presence via our website and through participation in several major-specific LinkedIn groups. In addition, we utilize Twitter to share information about upcoming events and opportunities.

Human Sciences Outreach
The College of Human Sciences Outreach office performs a vital role in the academic programs and services mission within the College, providing support services for courses using a variety of delivery methods to serve diverse student needs. Various types of international study programs are offered to engage students in international opportunities and education. In addition, courses that take students to various locations to experience hands-on education are offered through Outreach. Web-based courses and other distance delivery methods serve students who are unable to access traditional educational offerings. As a member of the Great Plains Interactive Distance Education Alliance, the College of Human Sciences Outreach office provides support services for online master's programs in family financial planning, gerontology, and dietetics. Consistent with the missions of OSU and the College of Human Sciences, Outreach serves state, national and international audiences.
Honors
Outstanding students in the College of Human Sciences who meet the requirements of The Honors College may earn the Honors College Degree while completing their undergraduate degree in this college. College honors are earned at the upper division (3000- and 4000-level classes) in the student’s major and are one of the requirements for receiving a bachelor’s degree with honors. Students with 7-59 hours must have a 3.25 cumulative GPA. Students with 60-99 credit hours must have a 3.37 cumulative GPA. Students with 90 or more credit hours must have a 3.50 cumulative GPA. College honors requires HES 4000 Honors Seminar, six hours of upper-division honors credit in the department and three hours of honors thesis or creative component. For further information on the Honors College, refer to www.okstate.edu/honors or visit the Honors College in 101 Old Central.

Scholarships
Oklahoma State University has a scholarship program for entering freshmen and first-year transfer students, and applications should be sent to the Scholarships and Financial Aid Office by February 1. College of Human Sciences scholarship applications are typically due for continuing students in December and scholarship awards are announced in April. Freshmen and first-year transfer student scholarships are awarded during the spring semester to students entering Human Sciences in the following fall semester. Criteria for and the amount of the scholarship awards vary.

Academic Programs
Undergraduate Programs. The Bachelor of Science degrees within the College of Human Sciences are offered by three departments and one school. The majors are:
- Design, Housing and Merchandising (DHM), with options in apparel design and production, interior design and merchandising.
- Human Development and Family Science (HDFS), with options in early childhood education, child and family services, family and consumer sciences education.
- Hotel and Restaurant Administration (HRAD).
- Nutritional Sciences (NSCI), with options in allied health, community nutrition, dietetics, and human nutrition/premedical sciences.

Subject-focused minors are available through three departments within the College of Human Sciences. Details regarding these minors may be obtained by contacting the appropriate programs.

Transfer Student Admission Requirements. Students transferring into the College of Human Sciences from another institution or another college at OSU must have a minimum retention GPA of 2.00 unless otherwise specified by a Human Sciences department or school (see DHM, HDFS and NSCI transfer admission requirements).

Master's Programs. The Master of Science degree is available in design, housing and merchandising; hospitality administration; human development and family science and nutritional sciences. Students seeking admission to a master’s degree program in any of the departments/schools must have qualified standing at the graduate level in the college and by the department in which the student intends to study. In addition, those seeking admission must have completed 30 semester credit hours in human sciences or closely related subject matter. A student with background deficiencies must compensate for such deficiencies before admission to the master’s program. Graduate Record Examination (GRE) scores are required by master’s programs within the HDFS and NSCI departments. The Department of DHM and the School of HRAD require submission of GRE/GMAT scores for admission consideration. The plan of study for a master’s degree student is individually planned to develop academic excellence specific to the student’s career goals. Refer to descriptions of specific master’s degree programs for each department or school. The selection and organization of courses are made in consultation with the adviser and the student’s advisory committee. At least 21 semester credit hours must be completed in courses numbered 5000 or above.

Online Master's Programs. The Master of Science degree in Human Sciences offers an option in family financial planning (FFP). This program is offered online by the Great Plains Interactive Distance Education Alliance (Great Plains IDEA), of which OSU is a member. The FFP master's curriculum is approved by the Financial Planner Board of Standards and requires 42 credit hours, preparing students to take the Certified Financial Planner (CFP ®) examination. The online version of the program requires 36 credit hours and the graduate certificate requires 12 credit hours.

Doctoral Program. The Doctor of Philosophy degree is a multidisciplinary degree program through the College in conjunction with the departments of Design, Housing and Merchandising, Human Development and Family Science, Nutritional Sciences and the School of Hotel and Restaurant Administration. Individualized programs lead to specialization in any one of the departments/schools. Admission to the program is based upon evidence that the applicant meets general requirements of the Graduate College, has demonstrated academic and professional achievements, and can successfully complete a doctoral program, as evidenced by prior academic work, minimum 3.25 GPA in graduate level course work, letters of recommendation, a statement of purpose and goals, and GRE or GMAT scores. Applications are reviewed by a graduate faculty committee in each department or school. This program offers a combination of coursework and research experiences. The program includes a strong emphasis on research and application of statistical procedures, as well as having students gain experience in resource generation, knowledge sharing and community engagement.

A minimum of 60 semester credit hours beyond the master’s degree is required for the PhD degree. The PhD degree prepares individuals to be researchers and educators for research positions in universities, business and industry, for university teaching and for administrative or management level positions.

Human Development and Family Science and Nutritional Sciences additionally offer a 90 semester credit hour PhD program which incorporates the requirements to achieve both a Master of Science degree and a Doctor of Philosophy degree. Students admitted into the 90 hour PhD will complete requirements in the first 30 credit hours for either a MS degree in Human Development and Family Science (Developmental and Family Sciences option) or in Nutritional Sciences (thesis option).

Departmental Clubs and Honor Societies
American Hotel and Lodging Association (student chapter)
American Society of Interior Designers Student Chapter
Early Childhood Education Club
Eta Sigma Delta (hotel and restaurant administration honor society)
Graduate Students in Human Sciences Association
Hospitality Administration Graduate Student Association
Hospitality Days
Human Development and Family Science Club
Human Sciences Ambassadors
Human Sciences Scholar Leaders
Human Sciences Student Council
International Facility Management Association Student Chapter
International Interior Design Association Student Chapter
Kappa Omicron Nu (scholarship and leadership honor society)
Meeting Professionals International (student club)
Merchandising and Apparel Design Association
Nutritional Sciences Club
OSU Student Restaurant Association
Phi Epsilon Omicron (scholarship and leadership honor society)
Sigma Phi Omega (gerontology honor society)

Design, Housing and Merchandising
Kathleen Robinette, PhD—Professor and Head
The mission of the Department of Design, Housing and Merchandising (DHM) is to foster visionary, innovative solutions to global human issues, using creative, critical thinking, and technological processes within the context of Design, Housing and Merchandising. Three undergraduate options are available: apparel design and production, interior design, and merchandising each requiring a summer internship between the junior and senior years.

Students in apparel design and production are preparing for careers in the apparel and sewn products industries. The program emphasizes the integration of design principles, construction methods, consumer preferences and mass production strategies. Course work includes principles of design, anthropometrics and pattern grading, apparel assembly and production, draping techniques, methods of mass production, quality assurance, properties and performance evaluation of textiles, patternmaking, computer-aided design and technology, entrepreneurship, and a required internship to acquire apparel design industry experience. Students must pass a proficiency review at the end of the sophomore year to continue in the program’s upper division courses. The American Apparel and Footwear Association (AAFA) Education Foundation has endowed the preproduction (design) and production management undergraduate curricula, making OSU one of only 13 schools in North America recognized with an AAFA-approved apparel program. Career opportunities include apparel designer, technical designer, product development manager, accessory designer, patternmaker, textile designer, sourcing manager, quality assurance manager, product manager and apparel engineer.

Students in interior design are preparing for careers as professionals who assist businesses and families in planning and solving problems related to the function and quality of interior living and working environments. Course work includes fundamentals of design, design analysis, ergonomics, concept development, space planning and programming, design of indoor space, computer-aided design (CAD) and related aspects of environmental design. Students must pass the Proficiency Review Process at the end of their freshman year to be
accepted into the professional level interior design program. Upon acceptance, students are expected to have their own laptop computer with sufficient capacity for graphics software used in the profession. Career opportunities include professional practice in interior design and architectural firms, lighting, facility management, historic restoration and preservation and product design and sales. The undergraduate interior design program is accredited by the Council for Interior Design Accreditation (CIDA) and the program has achieved national ranking by the publication Design Intelligence.

The merchandising program prepares students for careers at every level of the soft goods industry: trend forecasting, textile sales, wholesaling, product lines to retailers, retail buyers, managers, visual merchandisers as well as auxiliary industries including fashion journalism, event planning, and logistics. Course work includes retailing, merchandise planning and analysis, sustainable design, profitable merchandising analysis, visual merchandising and communications, market analysis, quality assurance, retail technology and international sourcing. Merchandising graduates are in high demand among retailers, manufacturers, product developers, and designers.

Students in all three options will develop business management, communication, creative problem solving and administrative skills. Minors are available in merchandising and apparel design and production.

Admission Requirements. Transfer students must meet the following minimum retention GPA requirements in order to be admitted to the DHM undergraduate program:

<table>
<thead>
<tr>
<th>Hours Completed</th>
<th>Minimum GPA Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer than 31 hours</td>
<td>2.00</td>
</tr>
<tr>
<td>31-45 hours</td>
<td>2.25</td>
</tr>
<tr>
<td>Over 45 hours</td>
<td>2.50</td>
</tr>
</tbody>
</table>

**Graduate Programs**

The Department of Design, Housing and Merchandising offers graduate work leading to the Master of Science in Design, Housing and Merchandising and the Doctor of Philosophy in Human Sciences with an option in design, housing and merchandising. The programs are scientifically based research and/or design oriented. Graduate degrees in the department are tailored to departmental needs of expertise, professional goals of the candidate and College of Human Sciences Graduate College requirements. Graduate programs may focus on either merchandising or design. Students may investigate design and merchandising from the perspectives of product development and evaluation, consumer and supplier behavior, business development and management, and constructed environmental and individual interrelationships.

**The Master of Science Degree**. The Master of Science degree is designed to prepare individuals for careers in business, industry, extension and post-secondary or college teaching. The thesis plan (research or design) is available for students in apparel design and interior design. For merchandising master students, research thesis and course work only options are available. Programs of study are built around the academic background, experience, needs, special interests and professional goals of the student. The selection of courses that meet departmental requirements is made in consultation with the advisory committee. A minimum of 21 credit hours must be taken in the department. Additional courses may be selected from other areas of human sciences or from supporting areas such as marketing, sociology, history, and business. If the undergraduate degree is not in the area of specialization, specific graduate courses in design, housing and merchandising will be required as prerequisites.

**The Doctor of Philosophy Degree**. The PhD prepares individuals for research positions in universities, business and industry, for university teaching and for administrative or management level positions. The student will be expected to have a master's degree or equivalent in design, housing and merchandising or in a closely-related area from a college or university of recognized standing. A student may be required to demonstrate competence in the area of specialization and in related areas, and further course work may be required before admission will be granted.

The plan of study is individually determined for the student in cooperation with an advisory committee. Each plan of study will be an integrated combination of courses and research providing for specialization within an area of design and merchandising, including synthesis of knowledge drawn from departments within and outside of human sciences. Emphasis is on attainment of competencies rather than on the completion of specific numbers of credits; however, a minimum of 60 credit hours beyond the master’s degree must be completed. Each student will develop competence in the area of specialization which includes courses in the major and the support area. International and management dimensions are included.

The program includes a strong emphasis on research and application of statistical procedures, as well as having students gain experience in resource generation, knowledge sharing, and community engagement. More detailed information on graduate study in the Department of Design, Housing and Merchandising can be obtained from the department website human sciences.okstate.edu/dhm or by writing the head of the department.

**Hotel and Restaurant Administration**

Jennifer Hays-Grudo, PhD—Professor and Head
The Department of Human Development and Family Science (HDFS) is a premier academic program dedicated to the discovery, integration and

**College of Human Sciences**

Oklahoma State University

2014-2015 University Catalog
Graduate Programs

Graduate study in the Department of Human Development and Family Science (HDFS) is designed to prepare students in the creation, dissemination, and application of knowledge focused on reducing risk and enhancing resilience within individuals and among families. HDFS offers graduate study leading to the Master of Science degree. The graduate program in Human Development and Family Science in HDFS emphasizes the integration of theory, research and application to address key issues in risk and resilience. The MS options include Child and Family Services, Developmental and Family Sciences, Early Childhood Education, Marriage and Family Therapy, and Gerontology. The PhD is offered in Human Sciences with an option in Human Development and Family Science. Students work with their advisers and advisory committees to develop flexible yet rigorous programs that meet degree requirements and professional competencies in the area of specialization. Graduate programs in HDFS are central to departmental research. Faculty and students engage in the integration of theory and research to advance the development and application of knowledge to reduce risk and enhance resilience for individuals and families across cultures and generations.

HDFS has provided high quality graduate education programs for decades and has graduates in leadership positions across the state and nation in all areas of specialization. The department includes four centers/institutes that enhance student experiences in graduate study: (a) the Child Development Laboratory/Rise Program; licensed by the state of Oklahoma and the National Association for the Education of Young Children (b) the Center for Family Services, offering high quality marriage and family therapy to the public and a training environment for master’s degree students who choose the Marriage and Family Therapy option; (c) the Gerontology Institute; focused on enhancing the quality of life for aging populations through interdisciplinary programs of instruction, research, and public service; and (d) the Center for Family Resilience focused on the promotion of resilience and reduction of risk among individuals, couples, and families across the lifespan in rural and urban areas of Oklahoma through multidisciplinary research, education, and outreach.

The Master of Science Degree. The MS degree in Human Development and Family Science is awarded in five options. Applicants specify the option in which they are seeking the MS degree as part of the application process: Child and Family Services (available on both the Stillwater and Tulsa campuses), Developmental and Family Sciences (available on both the Stillwater and Tulsa campuses), Early Childhood Education (available on the Stillwater campus), Marriage and Family Therapy (CDAM accredited), or Gerontology (offered on the Stillwater campus and online through the Great Plains Interactive Distance Education Alliance).

Admission to the MS program is selective and requires the completion of a bachelor’s degree in Human Development, Family Science, Child and Family Services, Early Childhood Education, or a related area. Admission decisions are based on a variety of criteria, including grade-point average (3.0 minimum grade-point average in undergraduate work), GRE scores (scores of 450 or higher in each of the Verbal and Quantitative sections and 3.5 or higher on Analytical Writing or the equivalent on the August 2011 revision of the GRE and a score of 20 for admission). TOEFL scores are required for students for whom English is a second language, 575 minimum), three letters of recommendation, statement of student goals, and a resume or vita. Students need to complete both an OSU Graduate College Application and an HDFS Department Admission. Admission is available for the fall semester only in the Marriage and Family Therapy option. Applications are reviewed for the fall and spring (on a space available basis) in the other four options.

Students in each option take a minimum of 18 credit hours of department core courses designed to prepare them to integrate theory, research, and application focused on reducing risk and enhancing resilience within individuals and among families across cultures and generations. Additional course work (ranging from a minimum of 12 semester hours to a maximum of 44) in each option, approved by the adviser and student’s advisory committee, is focused on integrating theory, research and application within the option. Four options (Child and Family Services, Early Childhood Education, Marriage and Family Therapy, and Gerontology) offer both a thesis and non-thesis option (requiring a creative component). The Developmental and Family Sciences option requires a thesis. The minimum number of semester hours required for each option is as follows: Child and Family Services (36 semester hours for thesis or non-thesis plan), Early Childhood Education (30 semester hours for thesis plan or 32 for non-thesis), Developmental and Family Sciences (36 semester hours for thesis plan), Marriage and Family Therapy (30 semester hours for thesis plan), and Gerontology (36 semester hours for thesis plan; 36 semester hours for the non-thesis plan; and 36 semester hours for the online program through the Great Plains Interactive Distance Education Alliance).

The Child and Family Services option is designed to develop leadership in Child and Family Services programs. Graduates: (a) demonstrate an ability to describe, discuss, and integrate theory, research, and application to address key issues related to reducing risk and enhancing resilience; (b) establish a solid theoretical foundation in human development and family science; and (c) gain theoretical and demonstrated competence in professional practice related to child and family services. Career opportunities include administrator of a child and family services agency or program; early interventionist; child development specialist; child life specialist; family life specialist; parent educator; family life educator; state and federal policy and advocacy specialist; or family advocate.
Graduates may also pursue doctoral study. The Child and Family Services option is available on both the OSU-Stillwater and the OSU-Tulsa campuses. The Early Childhood Education BS/MS option emphasizes child development as a foundation for the study and practice of professional education of children from birth through age eight. This program was designed for HDFS undergraduate students seeking both the BS and MS specializing in Early Childhood Education prior to entering the profession. The integration of course work in human development and family science, research methods, and statistics. Students complete a thesis and get practical research experience. The Developmental and Family Sciences option is available on both the OSU-Stillwater and OSU-Tulsa campuses. The Marriage and Family Therapy option is accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy. The Marriage and Family Therapy program provides students with basic knowledge, clinical skills and a professional identity essential for entry level practice of marriage and family therapy. Students specializing in marriage and family therapy operate the Center for Family Services, an on-campus family therapy clinic. The MFT curriculum takes at least two and one half years (including summers) to complete. The academic course work includes courses in systems theory, marriage and family therapy, theory and research, and professional ethics and research. Course work provides a framework for the application of marriage and family therapy theory and research in clinical practice. In addition, all students are required to take at least one month of field experience prior to graduation. Graduation requirements include the completion of required course work, a minimum of 500 client contact hours, and the completion of either a thesis or creative component. The Marriage and Family Therapy option is only available on the OSU-Stillwater campus. The Gerontology option engages students in an in-depth study of adulthood, the aging process, needs of aging individuals and family care providers, and the aging process of elderly individuals. It includes the prerequisites for admission to most medical, dental, optometry and pharmacy schools. The allied health option provides required coursework for most nursing schools, physician assistant programs, schools of medical and other professional schools, graduate study and research in human nutrition. It includes the prerequisites for admission to medical, dental, optometry and pharmacy schools. The allied health option provides required coursework for most nursing schools, physician assistant programs, schools of medical and occupational therapy, dental hygiene and other health professions. The community nutrition option offers coursework and experiences for positions in nutrition education, professional training, nutrition research education and administration of scientific knowledge. The mission of the OSU Didactic Program in Dietetics is to promote human health and quality of life by preparing students for future roles in dietetics and dietetics-related professions. The dietetics profession is diverse and dynamic, integrating human development and family science, food science, nutrition, chemistry, psychology, nutrition, management and interpersonal skills. The dietetics option is the only option that includes the Didactic Program in Dietetics (DPD) coursework required for application for competitive dietetic internships (DI). With successful completion of the academic requirements (DPD) and supervised practice component (DI), they are eligible for the national Registration Examination for Dietitians administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics (the Academy). The information and an HDFS Department Application. More information on the Ph.D option in HDFS may be obtained from the HDFS department at humansciences.okstate.edu/hdfs or by e-mail: human.sciences.hdfs@okstate.edu.

Nancy M. Betts, Ph.D, R.D. — Regents Professor, Jim & Lynne Williams Endowed Professor and Head

The Department of Nutritional Sciences advances health and quality of life of individuals and communities by discovering knowledge and applying it through research, instruction, and a variety of applications associated with reducing risk and enhancing resilience of individuals and families. To achieve breadth, depth, and experience in the primary emphasis area and in the integration between human development and family science, students take courses and participate in individualized experiences, approved by their major adviser and doctoral advisory committee, that guide the student in mastering the forms (teaching, the integration of theory and practice) and functions (discovery of knowledge, integration of knowledge, application of knowledge, and transmission of knowledge) of scholarship expected of doctoral graduates in HDFS.

Two options are available: 90-hour program for BS graduates and 60-hour program for MS graduates (with additional coursework possible for students with BS and MS degrees in other fields). Doctoral training includes participation in research throughout the doctoral program, a qualifying examination in statistics, and completion of portfolio documents designed to integrate knowledge from course work and experiences and demonstrate attainment of doctoral competencies. Courses required include a minimum of 15 semester hours in human development and family science content classes. 15 hours in human development and family science methods classes and research practica, 12 semester hours in research and statistics classes, three semester hours in human sciences, and 15 hours of dissertation research. Students who did not complete a thesis for the master's degree are required to complete a thesis equivalent project (beyond the 60 semester hour requirement).

Admission to the Ph.D program is selective and requires the completion of an MS in human development, family science, or related field. Admission decisions are based on a variety of criteria including grade-point average (3.0 grade-point average in undergraduate work and 3.5 in previous graduate study preferred; 3.25 in previous graduate study required), GRE scores (450 or higher on the Verbal and 580 on the Quantitative sections and 4.0 or higher on the Analytical Writing section preferred or the equivalent TOEFL score of 550 on the paper-based TOEFL or 550 on the internet-based TOEFL), a statement of student goals and a résumé. Students are required to complete both an OSU Graduate College Application and an HDFS Department Application.

The mission of the OSU Didactic Program in Dietetics is to promote human health and quality of life by preparing students for future roles in dietetics and dietetics-related professions. The dietetics profession is diverse and dynamic, integrating human development and family science, food science administration, food science, chemistry, psychology, management and interpersonal skills. The dietetics option is the only option that includes the Didactic Program in Dietetics (DPD) coursework required for application for competitive dietetic internships (DI). With successful completion of the academic requirements (DPD) and supervised practice component (DI), they are eligible for the national Registration Examination for Dietitians administered by the Commission on Dietetic Registration (CDR) of the Academy of Nutrition and Dietetics (the Academy). The information and an HDFS Department Application. More information on the Ph.D option in HDFS may be obtained from the HDFS department at humansciences.okstate.edu/hdfs or by e-mail: human.sciences.hdfs@okstate.edu.

Nancy M. Betts, Ph.D, R.D. — Regents Professor, Jim & Lynne Williams Endowed Professor and Head

The Department of Nutritional Sciences advances health and quality of life of individuals and communities by discovering knowledge and applying it through research, instruction, and a variety of applications associated with reducing risk and enhancing resilience of individuals and families. To achieve breadth, depth, and experience in the primary emphasis area and in the integration between human development and family science, students take courses and participate in individualized experiences, approved by their major adviser and doctoral advisory committee, that guide the student in mastering the forms (teaching, the integration of theory and practice) and functions (discovery of knowledge, integration of knowledge, application of knowledge, and transmission of knowledge) of scholarship expected of doctoral graduates in HDFS.

Two options are available: 90-hour program for BS graduates and 60-hour program for MS graduates (with additional coursework possible for students with BS and MS degrees in other fields). Doctoral training includes participation in research throughout the doctoral program, a qualifying examination in statistics, and completion of portfolio documents designed to integrate knowledge from course work and experiences and demonstrate attainment of doctoral competencies. Courses required include a minimum of 15 semester hours in human development and family science content classes. 15 hours in human development and family science methods classes and research practica, 12 semester hours in research and statistics classes, three semester hours in human sciences, and 15 hours of dissertation research. Students who did not complete a thesis for the master's degree are required to complete a thesis equivalent project (beyond the 60 semester hour requirement).

Admission to the Ph.D program is selective and requires the completion of an MS in human development, family science, or related field. Admission decisions are based on a variety of criteria including grade-point average (3.0 grade-point average in undergraduate work and 3.5 in previous graduate study preferred; 3.25 in previous graduate study required), GRE scores (450 or higher on the Verbal and 580 on the Quantitative sections and 4.0 or higher on the Analytical Writing section preferred or the equivalent TOEFL score of 550 on the paper-based TOEFL or 550 on the internet-based TOEFL), a statement of student goals and a résumé. Students are required to complete both an OSU Graduate College Application and an HDFS Department Application.

More information on the Ph.D option in HDFS may be obtained from the HDFS department at humansciences.okstate.edu/hdfs or by e-mail: human.sciences.hdfs@okstate.edu.
Nutrition professionals work in a wide range of settings, in both the public and private sectors and assume an array of challenging responsibilities. Career opportunities for a registered/licensed dietitian include: health care dietitian and administrator, nutrition researcher, fitness/wellness consultant, public health nutritionist, school nutrition director, Cooperative Extension educator, entrepreneur in dietetics programs and services, and corporate dietitian/nutritionist. DPD Graduates who do not enter dietetic internships may work in related fields which do not require the RD credential such as school food service, cooperative extension, pharmaceutical or food sales, food service management and government programs; take the certified dietary manager (CDM) exam; or enter related graduate programs such as Master of Science in Public Health. Upon earning the DPD “verification statement,” students may take the RD exam to become dietetic technicians, registered (DTR). University teaching and research in the field of nutrition and some specialized careers require advanced degrees or additional course work.

Admission Requirements. Transfer students must have earned a 2.5 retention GPA in order to be admitted to the NSCI undergraduate program.

Further information may be found at humansciences.okstate.edu/nsci.

Dietetic Internship. The dietetic internship (DI) at Oklahoma State University requires a bachelor’s degree and prior completion of the DPD requirements for admission and meets The Academy’s 1200 hour supervised practice requirements for registration eligibility. Its mission is to advance health and quality of life of individuals and communities by preparing dietetic professionals for competent practice through education, discovery and application of scientific knowledge. The internship provides experience in clinical, management, and community practice settings where interns develop entry-level practice competence. Entry into the dietetic internship is competitive, requiring an application to the OSU DI and NSCI Master’s Degree in the Academy of Nutrition and Dietetics computer matching or pre-selection process. All students admitted to the Dietetic Internship must earn the departmental Master of Science in nutritional sciences (nutrition option) or enter with at least an MS which is essentially equivalent to the NSCI MS.

The Dietetic Internship at OSU is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, Illinois 60606-6995, 312.899.0040 ext. 5400. Dietetic Internship information is found at humansciences.okstate.edu/di.

Graduate Programs
The Department of Nutritional Sciences offers graduate study leading to a Master of Science degree in nutritional sciences and a Doctor of Philosophy degree in Human Sciences with an option in nutritional sciences. Graduate study in NSCI emphasizes the conduct and application of research to the field of human nutrition. Graduate students work with an adviser and advisory committee to develop flexible, yet rigorous programs of study and research that meet the degree requirements and student’s professional goals within an area of specialization in the field.

The Master of Science Degree. The MS degree program is designed to develop research skills, stimulate independent thought and critical thinking, and provide up-to-date knowledge in a variety of areas of human nutrition. Admission to the MS graduate program is selective and is based on a variety of factors including the student’s grade-point average (overall and science GPA), Graduate Record Examination (GRE) scores, letters of recommendation and goal statement. The prerequisite for the MS program is a BS in nutritional sciences. Students with a BS degree in a subject area other than nutrition are required to have a minimum of 30 credit hours of undergraduate/graduate course work related to nutritional sciences, including at least one course in biochemistry, one course in physiology and one upper-level nutrition course prior to full admission. Applicants who do not meet these requirements may be considered for conditional acceptance and required to take prerequisite courses.

Students in the MS program-nutrition option can choose one of two tracks: thesis or non-thesis. The MS degree with thesis requires a minimum of 30 credit hours, including six credit hours for thesis research (NSCI 5900). Thesis research is conducted within the adviser’s area of interest and is approved by an advisory committee. The non-thesis MS degree requires a minimum of 34 credit hours with three credit hours of NSCI 5842, including a comprehensive examination, the writing of a research paper, and an oral presentation. The student’s plan of study and research is determined in consultation with his/her adviser and advisory committee.

An online Master of Science degree in nutritional sciences with an option in dietetics is also offered to Registered Dietitians (RD) or individuals who are RD eligible. OSU offers this degree program as a member of the Great Plains Interactive Distance Education Alliance (Great Plains IDEA) which provides the opportunity for Registered Dietitians to study with faculty from eight universities in Alliance via Internet-based courses. The MS in Dietetics requires completion of 36 credit hours hours, including core credits, six OSU Nutritional Sciences Core credits, 18 elective credits and NSCI 5843. A faculty adviser and the graduate committee from the Nutritional Sciences department must approve a student’s program of study. More detailed information can be found at humansciences.okstate.edu/gpidea.

The Doctor of Philosophy Degree. The PhD degree is awarded in Human Sciences with an option in nutritional sciences. Two programs are available: a 60 hour program for MS graduates and a 90 hour program for BS graduates. The focus of the program is to prepare individuals for careers in a variety of areas including higher education, industry, healthcare and government programs. Admission to the program is competitive and applicants are expected to provide evidence of exceptional academic ability and preparation, a statement of goals and letters of recommendation. Grade-point average in previous undergraduate and graduate course work and Graduate Record Examination (GRE) scores are considered in the evaluation of the applicant. If a thesis was not required as a component of the applicant’s MS program, a thesis or equivalent must be completed in addition to the requirements for the doctoral degree. Prerequisite course work for full admittance to the PhD program includes at least one graduate or undergraduate course in biochemistry and physiology, six credit hours at the graduate level in nutrition and three credit hours of statistics. Students with MS degrees in a subject area other than nutrition will also be required to have a minimum of 30 credit hours of undergraduate/graduate course work related to nutritional sciences, including the prerequisite courses listed above. Applicants who do not meet these requirements may be considered for conditional acceptance and required to take additional prerequisite courses.

The PhD program includes a strong emphasis on research in areas ranging from basic molecular and cellular sciences to clinical and community applications. Students also gain experience in resource generation, knowledge sharing and community engagement. Each program of study is designed by the student under direction of his/her faculty adviser and advisory committee to develop the student’s competence in an area of specialization and research methodologies. Doctoral training includes 15–30 hours of dissertation research, a qualifying examination covering core nutrition knowledge, a comprehensive examination focused on the area of specialization and participation in research throughout the program.

More detailed information on graduate study in the Department of Nutritional Sciences can be obtained by writing the graduate coordinator, or on the website at humansciences.okstate.edu/nsci.
Spears School of Business

College Administration
Ken Eastman, PhD—Dean
Karen Flaherty, PhD—Associate Dean
Carol Johnson, PhD—Associate Dean
Ramesh Sharda, PhD—Interim Vice Dean

Campus Address and Phone:
201 Business Building, Stillwater, OK 74078
405.744.5064

Website: spears.okstate.edu

Today's business world is one of excitement and challenge. At the Spears School, we engage and inspire the student in everyone to dream big, stretch leadership potential, transform organizations, and make a difference in the world. We expect hard work, creativity, and innovation in pursuit of your passions; and expect leaders to pay off through transformation of the lives and organizations that we touch.

The goal to which the Spears School continually strives is to be the business school known for positively transforming organizations. We will accomplish this through the Spears Engagement Experience which actively involves stakeholders in a learning environment that is explorative, challenging, inspiring, supportive, and transformative. Our core activities and strategic initiatives that support these goals are:

1. institutionalize the Spears Engagement Experience;
2. strengthen relationships;
3. foster a culture of collegiality and collaborations;
4. provide boundaryless learning;
5. advance high impact scholarship;
6. increase reputation and recognition.

The Spears School provides students with a broad educational experience by including studies in social sciences, communications, humanities, fine arts, natural science and mathematics. In addition, the student is provided with an understanding of the functions of business and how they integrate within organizations.

Accreditation
The Spears School of Business (spears.okstate.edu) at Oklahoma State University is accredited by The Association to Advance Collegiate Schools of Business (AACSB International).

High School Preparation
Although a sound high school program is adequate preparation, prospective business students will benefit from a strong background in English and mathematics. Also, course work in history and government, science, geography, computer science, foreign language and public speaking will be quite valuable.

Scholarships
Oklahoma State University has an extensive scholarship program which includes entering freshmen. For full consideration as a prospective student, applications should be sent to the OSU Office of Scholarships and Financial Aid by February 1 during one's senior year in high school. Spears School of Business scholarships are primarily designated for sophomores, juniors and seniors. Scholarship awards are based on academic performance, participation, leadership and need, and applications must be received by the end of January.

Academic Advisement and Enrollment Procedure
Students plan their study in conference with a staff adviser in the Business Student Success Center of the Spears School of Business. The associate dean, as well as the assistant director of the Business Student Success Center, is available to all students for counseling on special problems.

Academic Programs
Undergraduate Programs. The Bachelor of Science in Business Administration degree is offered by five departments and two schools. Departmental majors are listed below.

Accounting, with a major in accounting.
Economics and Legal Studies in Business, with majors in economics (with options in business economics and quantitative studies and pre-law) and general business (with an option in pre-law).
Entrepreneurship, with a major in entrepreneurship.
Finance, with a major in finance and an option in commercial bank management.
Management, with a major in management and options in human resource management and sports management.
Management Science and Information Systems, with a major in management information systems and options in management science and computer systems and information assurance.
Marketing, with majors in marketing and international business.

Additional information about the undergraduate programs in the Spears School of Business can be found on the Internet at spears.okstate.edu/future/undergraduate.

Outstanding students in the Spears School of Business who meet the requirements of the Honors College may earn various honors designations while completing their undergraduate degree in this School. For more information, please refer to the Honors College information in the Catalog.

Master's Degree Programs. Two types of master's degrees are available to students desiring to undertake advanced work in the business area, specialized professional skills, or preparation for doctoral studies.

The MBA also allows more in-depth study in the areas of accounting, risk management, information assurance and network security, information systems, telecommunications management, entrepreneurship and economics. The following identifies where additional information about these degrees can be found in the Catalog:

- Master of Science in Accounting degree.
  (See "School of Accounting").
- Master of Science in Economics degree.*
  (See "Department of Economics and Legal Studies in Business.").
- Master of Science in Entrepreneurship degree.
  (See "School of Entrepreneurship.").
- The Master of Science in Management Information Systems (MIS) degree.
  (See "Department of Management Science and Information Systems.").
- Master of Science in Quantitative Financial Economics degree.
  (See "Department of Finance.").
- Master of Science in Telecommunications Management degree.
  (See "Department of Management Science and Information Systems.").

*The Master of Science in Economics is not subject to AACSB accreditation

Doctor of Philosophy Degree Programs. Graduate work toward the Doctor of Philosophy degree with a major in economics is offered in the Department of Economics and Legal Studies in Business. Graduate work toward the Doctor of Philosophy degree with a major in business administration is offered in the departments of Entrepreneurship, Finance, Management, Management Science and Information Systems, Marketing, the School of Accounting and the School of Entrepreneurship. The Spears School also offers a PhD in Business Administration that is tailored for executives.

Additional information about PhD programs can be found in the "Business Administration" section as well as in the various departmental sections.

*The PhD in Economics is not subject to AACSB accreditation.

Career Services
Representatives of more than 200 business, industrial concerns and governmental agencies annually interview graduating seniors and graduate students of the Spears School of Business. The School has career services specialists available to support business students in addition to the resources available to all OSU students.
General Education Requirements

The minimum general education requirements are summarized as follows: not less than 40 semester hours, including six hours of English composition and 31 hours in the breadth areas. These include: six hours in American history and government, three hours in social and behavioral sciences, six hours in humanities, three hours in analytical and quantitative thought and seven hours in the area of natural sciences, with one of the hours in scientific investigation.

Students are also required to take a "diversity" (D) designated course. This may be met in any part of the student's program, and thus does not necessarily add to the number of hours required. Diversity courses provide an understanding of the cultural context of relationships, issues and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, mental and physical characteristics, education, family values, religious and spiritual values, socioeconomic status and unique characteristics of individuals, couples, families, ethnic groups, and communities.

An additional requirement is an "international dimension" (I). This also may be met in any part of the student's program, and thus does not necessarily add to the number of hours required. The international dimension simply requires each student to learn about cultures and societies outside the United States. The scientific investigation requirement involves some kind of laboratory experience with student involvement. More details concerning these and other requirements can be found in the next section, "Lower-division Requirements."

Lower-Division Requirements

Work in the freshman and sophomore years is planned in such a way as to give the student basic information in the general areas of (1) behavioral and social sciences, (2) communications, (3) humanities and fine arts, (4) natural science and mathematics, and (5) business foundation courses. The student may also select additional hours from courses in these areas, with the opportunity of achieving either further breadth or a certain degree of depth by concentrating these hours in a particular area of interest. As part of the student's general education, one course must be selected that is identified as satisfying the diversity (D) requirement and one must be selected to satisfy the diversity (D) requirement.

During the freshman and sophomore years, the student will complete courses in each of the following areas:

- Behavioral and social sciences: American history, three semester credit hours; American government, three hours; and three hours elected from courses identified by the University as satisfying social science (S) credit.
- Humanities and fine arts: Six semester credit hours elected from courses identified by the University as satisfying humanities (H) credit.
- Natural science and mathematics: A minimum of 10-13 semester credit hours with the specific number of required hours in mathematics and natural science varying with the major chosen. Specific requirements for each major are published by the University in the book Undergraduate Programs and Requirements.
- Communications: English composition, six semester credit hours, and introduction to speech communication, three hours.
- Business core: All undergraduate business majors must complete the following business core course requirements: ACCT 2103, ACCT 2203, MGMT 4513, 2203, EEE 2023, FIN 3113, LSB 3213, MGMT 3013, MKTG 3213, MISIS 2103, 3223, and STAT 2023. For non-business students, the University prerequisite for upper-division courses applies. (See "Academic Regulations" elsewhere in the Catalog.)
- General electives: In addition, the student may elect courses from any area except lower-division studies and military science and LEIS and HHP activity courses to complete degree requirements.

Credits earned during the freshman and sophomore years at a two-year college may not be substituted for junior and senior course requirements in majors in the Spears School of Business.

Departmental Clubs and Honor Societies

African American Business Students Association
Alpha Kappa Psi
Association for Information Systems
Association of Information Technology Professionals
Beta Alpha Psi (accounting honor society)
Beta Gamma Sigma (business administration honor society)
Business Honors Organization
Business News Club
Business Student Council
Delta Sigma Pi (professional business organization)
Economics Society
Entrepreneurship Club
Financial Management Association
Freshman Business Student Leaders
GARP Student Chapter: Organization for MSQE Students
Human Resource Management Association

Information Security and Assurance Club
Marketing Club
MBA Student Association
Net Impace
OSU-Tulsa Business Association
Phi Beta Lambda (business leadership)
Sports Management Club
Students in Free Enterprise

School of Accounting

Robert Cornell, PhD—Associate Professor and School Head

The School of Accounting offers three degree programs in accounting: (1) BS in Business Administration with a major in accounting, (2) MS in accounting and (3) PhD in business administration with emphasis in accounting.

The common objective of the BS and MS in accounting programs is to educate students to commence and continue to develop in a wide range of professional accounting careers. The specific objective of the BS in accounting program is to provide basic conceptual and business knowledge as a foundation for accounting career development; the objective of the MS in accounting is to provide candidates with a greater breadth and depth in accounting than is possible in the BS program, in order to prepare graduates for careers as professional accountants in financial institutions, industry, non-business organizations and public practice.

Students who are considering a professional accounting career should have above-average aptitudes in mathematics and English, disciplined work habits, an interest in working with people and an attitude of service.

Students who have the objective of sitting for the CPA exam in Oklahoma must have a BS degree and are required to complete 150 semester hours consisting of 78 upper-division hours, 30 hours of accounting above introductory accounting (including 3 hours of external auditing), and nine upper-division hours from other business related areas. The Professional Program in Accounting (PPA) is especially designed to enable students to become CPA eligible. The PPA allows students to complete the requirement of 150 hours of education and receive a BS and MS in accounting. The MS in accounting earned at Oklahoma State University satisfies educational requirements for CPA candidates in all jurisdictions of the United States.

Accreditation. The School of Accounting is separately and fully accredited by the Association to Advance Collegiate Schools of Business (AACSB International).

Graduate Programs

The Master of Science in Accounting Degree. The specific objective of the MS in accounting is to provide candidates with a greater breadth and depth than is possible in the BS program, in order to prepare graduates for careers as professional accountants in financial institutions, industry, non-business organizations and public practice and to develop judgmental ability in accounting and related areas. Advanced courses provide a theoretical base for insight into significant problems confronting the accounting profession. In addition, a specialty in financial reporting, taxation, management information systems, finance or entrepreneurship is available for interested candidates. The candidate receives assistance from the faculty in selecting a pattern of courses designed to prepare the student according to the chosen professional goals.

Graduates of recognized colleges and universities whose records indicate adequate intellectual capacity and desirable personal characteristics may qualify for admission. Minimum admission standards are a GMAT score of 550, an undergraduate grade-point average in accounting of 3.25, and an overall grade-point average of 3.0.

Prerequisites. The following courses are required before beginning the MS program: 27 hours of accounting courses and 21 hours of other specified business courses.

The Doctor of Philosophy Degree. The PhD in the Spears School of Business with a major in accounting emphasizes flexibility to meet the particular needs and objectives of individual candidates. The program is designed to provide the highest degree of preparation for the individual student, enabling the student to make significant professional contributions in research, teaching or business or government positions.

Graduates of recognized colleges and universities whose records indicate adequate intellectual capacity and desirable personal characteristics may qualify if they have a good academic record and achieve satisfactory scores on the GMAT. Admission is very competitive.

The PhD program is designed so that a candidate may, at his or her option, specialize in one of the following accounting areas: auditing, managerial accounting, financial accounting systems or taxation. All candidates are required to take a series of seminars that provide an overview of relevant academic literature. These seminars are restricted to PhD candidates. Two minor areas, one of which may be outside the Spears School of Business, are required, in addition to competence in economics and quantitative methods. The candidate's advisory committee is responsible for assisting in the development of a plan of study encompassing the above areas. Students in residence are required to do teaching or research on a half-time basis while earning the degree.
Business Administration
Graduate Programs

The Master or Business Administration Degree. The Master of Business Administration program provides graduate professional education for individuals preparing for administrative careers in either the private or public sectors. It is a comprehensive yet flexible program providing the knowledge and analytical tools to cope with the complexities of management within diverse environments. There are a number of delivery options for the MBA: full-time, part-time, professional and distance.

Full-Time MBA. The full-time MBA is a 52-credit-hour semi-lock step program designed for individuals who want a cohort-based experience. Applicants must have earned a four-year undergraduate degree or equivalent from an accredited university and have competitive GPA and GMAT scores. Full-time students may choose between a general MBA and an in-depth specialization. Students choosing a general MBA are free to select 12 hours of electives in functional areas of business such as marketing, finance or management. Students seeking a more in-depth area of study may select from the following seven options: accounting, entrepreneurship, risk management, information assurance and network security, information systems and telecommunications management and economics.

Part-time MBA. The part-time MBA is a 48-credit-hour program designed for individuals who wish to enroll on a part-time basis. The self-paced program allows students to take classes as their schedules permit. Applicants must have earned a four-year undergraduate degree or equivalent from an accredited university and have competitive GPA and GMAT scores.

Professional MBA. The professional MBA was developed with the working professional in mind. It is a 36-credit-hour program that allows for flexibility and course selection to best meet career objectives. Applicants must have a minimum of three years substantive management work experience and a four-year undergraduate degree or equivalent from an accredited university in business or engineering. Applicants meeting the work experience criteria, but lacking an undergraduate degree in business or engineering, will be considered on a case-by-case basis. Applicants must have competitive GPA and GMAT scores.

Distance Learning. The MBA part-time and professional programs can be completed through a distance learning format. Distance learning is an ideal educational format for individuals seeking an alternative to the traditional on-campus classroom experience. Classes are delivered via CD-ROM or video streaming over the Internet, with interaction with faculty and other students occurring through a web-based environment.

Regardless of the delivery option, admission is granted to those students whose potential for successful graduate study is clearly indicated by the undergraduate grade-point average, the score on the Graduate Management Admissions Test, letters of recommendation from three sources, past work experience, extracurricular and community activities and stated career goals.

The Doctor of Philosophy Degree. The PhD in business administration is an interdepartmental program in the Spears School of Business, including accounting, entrepreneurship, finance, management, management science and information systems and marketing. The degree emphasizes flexibility to meet the particular needs and objectives of individual candidates. The program is designed to provide the highest degree of preparation for the individual student, enabling him or her to make significant professional contributions in research, teaching or business or governmental positions.

Requirements. Students select one major area of study from either accounting, entrepreneurship, finance, management, management information systems, management science or marketing, and two minor areas. The dissertation is usually written in the student's major area. One of the minor areas must be taken in the Spears School of Business. The second minor may be taken from another department within the Spears School of Business or from a department outside the Spears School.

All candidates for the PhD degree in business administration are expected to have a basic competence in all the major functional areas of business administration—aeronautics, economics, finance, management, management information systems, management science and marketing. In addition, basic competence is expected in finite mathematics, calculus and statistics. Students who possess a recent master's degree in business from a program accredited by the Association to Advance Collegiate Schools of Business (AACSB International) will generally have satisfied most of the basic competence requirements in these areas.

Administration. The program is administered by the dean of the Graduate College and the department in which the student enrolls with the assistance of a faculty advisory committee.

Major and Minor Areas. The candidate's advisory committee is responsible for assisting in the development of a plan of study that assures competence in the major and minor areas and in economics and quantitative analysis. All PhD students in residence are required to do teaching or research on a half-time basis while earning the degree.

For additional information about the PhD see the respective departments.

Economics and Legal Studies in Business

Lee Adkins, PhD—Professor and Head

Economics is a science of choice. The study of economics centers around individuals’ attempts to improve their living standards. It provides a comprehensive view of how a society is organized to transform the limited resources available into want-satisfying goods and services. It investigates the underlying mechanism of the economic system and seeks to determine its weaknesses and to prescribe policy measures that will improve its operation. In the process, it ranges over a host of the most important problems confronting contemporary society—the causes of and remedies for economic stagnation and inflation, the determinants of and methods for improving income distribution, poverty problems and welfare measures, the role of the government in economic activity, the requisites for economic growth and development, pollution and congestion and their control.

The primary objectives sought in the undergraduate curriculum are to develop a broad understanding and perspective of the economic aspects of people’s activities coupled with thorough training in the fundamental tools of economic analyses. Toward these ends, the development of elementary mathematical and statistical skills is highly desirable, as is complementary study in the social and behavioral sciences, accounting and business administration.

A major in economics prepares students for positions with business firms, non-profit private organizations and national or international government agencies. A degree option in business economics and quantitative studies is offered to provide additional training in analytical methods and communication skills for both public- and private-sector occupations. The undergraduate degree in economics also provides an excellent background for studying law or international relations and, to this end, there is a pre-law option and an international economics relations option. A student interested in pursuing graduate studies in economics should include a wide range of math courses in their undergraduate curriculum.

General Business. The general business program gives students a broad, comprehensive type of business education preparing them to enter employment in a wide range of administrative positions in private business, government or non-profit organizations. The scope of their educational experience enables these graduates to assume management positions in organizations of varying sizes and ranges of operations.

Students majoring in general business will take general education or foundation course work in behavioral and social sciences, communications, humanities and fine arts, natural science, mathematics and statistics, as well as business foundation courses in accounting, business communications, business law, economics, finance, management information systems, management and marketing.

This major, which provides for a high degree of individual student choice, includes required upper-division course work beyond the business core in each of the business disciplines as well as substantial work in business or business-related courses, selected by the student in consultation with his or her major adviser. A pre-law option is offered.

Graduate Programs

The department offers work leading to the Master of Science degree and the Doctor of Philosophy degree. The graduate program in economics prepares economists for academic careers as well as research and administrative positions in business and government agencies.

Graduate fields of specialization include regional and urban economics, international economics and economic development. In addition, graduate courses are offered in energy economics and econometrics.

The initial admission to a graduate program is determined by the graduate studies committee on the basis of the applicant’s previous academic record; verbal, quantitative and analytical scores of the Graduate Record Examination and three letters of recommendation.

The Master of Science Degree*. Admission to the master's program in economics is granted to college graduates with superior academic records. Students must have an undergraduate economics degree, be well grounded in economic theory, and have an excellent mathematical background. A total of 30-33 graduate credit hours are required to earn an MS in economics.

Each graduate student is guided in the preparation of a plan of study by the graduate adviser. At the master’s level, there are two options. One places the student with a well-rounded program that does not specialize in a particular area of economics. The second option is applied economics, which stresses communication skills, quantitative analysis and course work from other disciplines related to a career objective. The candidate for the master’s degree is required to show competence in basic economic theory and statistical methods, together with an understanding of the fundamental institutional operations of the United States economy.

A research report or thesis is required of all students who take only the MS degree. A foreign language is not required.

*Our MS in Economics is not subject to AACSB accreditation because Economics program are often taught in either business colleges or arts and sciences colleges.
The Doctor of Philosophy Degree*. Admission to the doctoral program in economics is granted to college graduates who have superior academic records. A total of 60 graduate credit hours are required to earn a PhD with a previously earned MS degree. A total of 90 graduate credit hours is required to earn a PhD without a previously earned MS.

The PhD program provides balanced preparation in economic theory, mathematics, and statistics, as well as competence in subject-area fields of specialization. The student is required to pass qualifying examinations in the theory core and in one field of specialization. (The theory core is not considered a field of specialization.) Competence must be demonstrated in a second field of specialization through course work. The graduate adviser helps the student develop a plan of study to achieve these objectives. A foreign language is not required.

A dissertation based upon original research is required of the candidate for a PhD degree in economics. The final oral examination is the dissertation defense.

*Our PhD in Economics is not subject to AACSB accreditation because Economics programs are often taught in either business colleges or arts and sciences colleges.

School of Entrepreneurship
Bruce Barringer, PhD—Professor and Head

The 21st century is the age of entrepreneurship. It is a time of dynamic change where organizations must be faster, more adaptable and flexible, more aggressive, and more innovative in order to survive. The program in entrepreneurship prepares students for this age. Students are encouraged to recognize and develop their innate entrepreneurial potential, and to apply an entrepreneurial mindset to both their professional and personal lives. The program emphasizes the role of entrepreneurial attitudes and behaviors in a wide variety of contexts, including new start-up ventures, growth-oriented small firms, family firms, non-profit entities, and public sector organizations. Students are further encouraged to apply entrepreneurial thinking and action within other disciplines, from architecture and engineering to social work and theatre.

Entrepreneurship is approached as opportunity-driven behavior. It is a process where individuals put resources together in new and novel ways to create value. The value created can be for customers in conventional markets, or it can be social value created for the community. The program centers on helping students develop competencies that will enable them to be more entrepreneurial in a wide variety of contexts. Eleven core competencies are emphasized, including recognizing opportunity, assessing opportunity, mastering your creativity, leveraging resources, guerrilla skills, mitigating and managing risk, planning when nothing exists, innovation—developing ideas that work, building and managing social networks, the ability to maintain focus yet adapt, and implementation of something novel or new. A leading-edge entrepreneurship curriculum is built around these competencies.

As a field of study, entrepreneurship helps students see themselves as agents of change, and better equips them to implement creative solutions to emerging opportunities in literally any organizational context. To foster these abilities, the program places considerable emphasis on experiential learning. Innovative experiential opportunities are built into the entrepreneurship courses at the undergraduate and master’s levels. In addition, the School manages two incubators, where students can start ventures, a dormitory for students interested in creativity, innovation and entrepreneurship, a campus-wide business plan, and other student engagement initiatives.

In addition to graduate offerings, the program offers an undergraduate major and minor in entrepreneurship as well as a cross-campus program involving the integration of entrepreneurship into other disciplines (e.g., engineering, art, psychology). More information about entrepreneurship at OSU can be found at entrepreneurship.okstate.edu.

Graduate Programs

The School of Entrepreneurship offers work leading to the Master of Science in Entrepreneurship degree, including both a residency and online program. In addition, concentration in Entrepreneurship is offered as part of the Master of Business Administration. A PhD in business administration with concentration in entrepreneurship is available to prepare students for careers in academia.

The Master of Business Administration (MBA) Degree with Entrepreneurship Concentration. (See "Business Administration")

Master’s in Entrepreneurship. The Master’s in Entrepreneurship (MSE) provides a rigorous immersion into the nature of entrepreneurship and the entrepreneurial process. Core content is coupled with a strong commitment to experiential learning. Students actually start a venture while in the program. The program is a help center for the university’s entrepreneurial age. Staph at Oklahoma State University. It is targeted to students with a passion for entrepreneurship in for-profit, non-profit, and public sector contexts.

The master’s program consists of 33 credit hours of coursework and can be completed in one calendar year. The application for admission to the program requires (1) Bachelor’s degree, (2) Proposal for a venture, (3) GMAT (recommended but not required), (4) Entrepreneurial and other work experience (recommended but not required), (5) three letters of recommendation. Based on this review, a personal interview is arranged with selected candidates, and then a final acceptance decision is made. Applicants are responsible for ensuring all relevant materials are submitted to the School prior to deadlines. An online version of the program is also available. To learn more, go to entrepreneurship.okstate.edu/academics/graduate/.

The Doctor of Philosophy Degree. The PhD in business administration with concentration in entrepreneurship is primarily focused on producing scholars who will be thought leaders in the discipline of entrepreneurship. The program prepares students primarily for careers in academia. Coordinated by the School of Entrepreneurship, students are given an intense exposure to theory and research methods.

The doctoral program involves sixty credit hours beyond the master’s degree, of which forty-two hours are course work, and the remaining hours are associated with dissertation work. It is a four-year program, with two years devoted to course work, followed by comprehensive exams and a dissertation proposal, and then the writing and defending of the dissertation. Students complete fifteen hours of core doctoral seminars in entrepreneurship and management, twelve hours of statistics and research methods courses, nine hours of doctoral or equivalent hours in a minor field, six hours of approved doctoral-level or equivalent electives. Students typically minor in such fields as psychology, sociology, anthropology, public policy, or finance.

Doctoral students are expected to publish while in the program, and also to teach entrepreneurship courses. Faculty mentors work closely with students on research projects while they are in the program, initially involving the student in dissertation research. Later, students are working on projects initiated by the student. Students are expected to develop and refine their research interests over the first two years of the program, culminating in the identification of a dissertation topic. The School of Entrepreneurship and the College of Business Administration of entrepreneurship researchers, is well-positioned to provide a wide range of topical areas that fit the student’s interests.

Outstanding individuals with master’s degrees in any field of study may apply. The application for admission to the program is evaluated based on (1) undergraduate and graduate grade point averages, (2) the student’s score on the Graduate Management Admission Test (GMAT), (3) a two- to three-page statement describing career goals, academic interests and research questions that intrigue the applicant, (4) three letters of recommendation, and (5) evidence of research potential. Based on this review, a personal interview is arranged with selected candidates, and then a final acceptance decision is made. Applicants are responsible for ensuring all relevant materials are submitted to the School prior to deadlines. For more information go to entrepreneurship.okstate.edu/academics/graduate/.

Finance

John A. Polonchek, PhD—Professor and Head

Financial executives are of central importance to the overall planning, control and success of an organization. There are financial implications in virtually all organizational decisions, whether the organization is a business firm, a non-profit organization or a government. Every manager must have substantive knowledge of finance to determine the financial implications of their decisions on the organization. With each new innovation in the field of finance— the importance of finance for an organization has grown.

Finance has evolved from a descriptive discipline in the early 1900s to the analytical discipline we find today. Finance theoreticians use fundamental economic theory to develop models and the tools of financial analysis and risk management that are used by finance practitioners to make financial decisions. Finance consists of three interrelated core areas: financial markets and institutions, investments and portfolio theory, and managerial (business) finance. Subsets of these core areas include personal finance, real estate finance, international finance, the management of financial institutions, insurance, entrepreneurial finance, and derivative securities and risk management.

The primary objective of the undergraduate finance curriculum is to produce graduates who have a broad understanding of the financial aspects of their decisions and actions and who are capable of utilizing the fundamental tools of financial analysis. Toward these ends, the development of elementary mathematical and statistical skills and the study of economics, accounting and business administration are needed to accomplish the objective. The major in finance should prepare students for positions that require special understanding of financial analysis, financial management and financial systems in a wide variety of organizations.

A career in financial management can begin in one of several positions that may lead to a managerial position, including chief executive officer. Initial positions in the managerial finance area include capital budgeting analyst, cash manager, credit analyst, financial analyst (who works closely with accountants), and risk manager. Alternatively, finance majors may choose to enter the financial services industries. Finance majors could enter the workforce in the banking industry as a loan officer, or as a member of the trust department; in the securities industry as a securities analyst, as an investment banker, as a stockbroker or account executive, or as a financial planner; and in the insurance industry as an agent or underwriter.
Graduate Programs

Concentrations in finance are offered through the Master of Business Administration, Master of Science in Quantitative Financial Economics and Doctor of Philosophy degrees.

The Master of Business Administration (MBA) Degree. (See "Business Administration.")

The Master of Science in Quantitative Financial Economics Degree. The discipline of quantitative finance has evolved tremendously in recent years, spurred by business and financial institution demand for quantitative skills. Oklahoma State University offers a Master of Science Degree in Quantitative Finance (MSQFE) to meet this demand. The objective of the MSQFE is to produce graduates with mathematical, statistical and financial modeling skills necessary to support advanced financial and economic decision making.

The MSQFE is a Spears School of Business degree program that draws on the combined expertise of five OSU departments—Finance, Economics, Mathematics, Statistics and Agricultural Economics. The program is designed to enable students to participate in decision processes and develop solution techniques for applications encountered in current and future financial environments. The program focuses on the analytical methods necessary for effective participation in the fields of investment management, risk management, and financial engineering. Significant course work is devoted to the development of mathematical and statistical skills. These skills are necessary to evaluate the uncertain outcomes found in financial applications. The program provides students the opportunity to apply their knowledge and skills to problems that utilize quantitative financial tools and techniques. The MSQFE program seeks to develop student competencies in risk evaluation methods, empirical estimation techniques, valuation methodology, and techniques, mathematical solution methods, capital budgeting, demand analysis and risk management.

The MSQFE is a 33 credit hour program. The core 24 hours consists of classes required of all students in the program. Students may elect to complete a master's thesis. This option would reduce the number of elective hours from nine to three.

The admission requirements include an earned undergraduate degree from a college or university of recognized standards. In addition to the Oklahoma State University Graduate College's standard requirements, the program's Curriculum Committee will consider the applicant's letter of recommendation, GMAT or GRE score, previous academic performance and financial/statistical modeling experience. The letter of recommendation is necessary to complete the program with only 33 hours of course work includes ten hours of calculus, differential equations, statistical methods, intermediate microeconomics and principles of finance.

Additional information about the program is available on the Internet at spears.okstate.edu/msqfe/.

The Doctor of Philosophy Degree. A PhD in business administration with concentration in finance prepares the student for careers in academia, business or government.

The program is designed to meet the needs and objectives of individual students but all students will seek an in-depth understanding of the theoretical foundations of financial economics, and develop research competency and teaching skills. The size of the program provides a supportive environment conducive to the exchange of ideas and the development of new insights by both faculty and students.

Students will select finance as their major area of study. Two areas of concentration are also to be selected. As support for the major field of study, each student is required to attain graduate-level competence in economic theory and quantitative methods.

Prerequisites for admission to the program are appropriate basic courses in accounting, calculus, statistics, and econometrics.

Competence in planning and executing research is demonstrated by a dissertation. In addition, each candidate must pass comprehensive qualifying examinations and a final oral examination on the dissertation itself.

Outstanding students with degrees in any field of study may apply. Applications for admission are evaluated on the basis of (1) undergraduate and graduate grade-point averages, (2) score on the Graduate Management Admissions Test, (3) a two- or three-page statement describing goals and academic interests, (4) at least three letters of recommendation, (5) evidence of research potential and (6) a personal interview when feasible. It is the applicant's responsibility to see that all materials related to these criteria are received by the Department of Finance.

Management

James M. Pappas, PhD—Associate Professor and Head

The purpose of organizations is to channel the efforts of individuals to accomplish goals working together in a meaningful way to realize success in business or in solving pressing social problems requiring skilled managers.

The field of management is concerned with applying social, psychological and economic theories of human behavior to the real-world problems of designing organizations leading and motivating employees, planning effective courses of action and efficiently allocating resources. Since the field of management deals with real-world problems, students should have an interest in acquiring a deep understanding of human behavior and applying this knowledge in a variety of different contexts to create value for themselves and others.

The Department of Management offers an undergraduate major in management with options in human resource management (HRM), sports management and business sustainability. The department also offers graduate studies leading to an MBA degree or a PhD degree. The disciplines spanned by these degrees often work dynamically, exciting career possibilities to students at all levels.

Management. Undergraduate students should look forward to both intellectual growth and the development of management skills that are in high demand in today's competitive business world.

The Management major, as well as the three optional specializations, are concerned with the analytical process and the application of decision tools and relevant theoretical problems solving. While the topics vary from one option to another, the common thread running through the Management major is the rational process of managing organizations, solving problems and accomplishing goals.

The major in management offers dynamic, exciting possibilities for study and employment by preparing students for leadership positions in all types of organizations. Some examples of topics include leadership, strategic management, planning courses of action, organizational behavior, resource allocation and administration. Students with degrees in management are employed by organizations of all types and sizes as managers or staff specialists. The major has flexibility so that the student may include coursework from any of the other business disciplines. The management major is a good choice for those interested in for profit leadership roles in business, non-profit and public sector organizations.

Option in Human Resource Management. Students in the human resource management option study topics pertaining to the management and well-being of an organization's workforce, including compensation administration, forecasting demand for personnel, labor relations and collective bargaining, recruiting, selection, and training and development. This option is designed to prepare students for careers in human resource management or for careers that facilitate the attainment of a competitive advantage through human capital. A career as an HRM professional offers many opportunities, such as developing and implementing innovative HR policies and assisting employees with career challenges and opportunities.

Option in Sports Management. Sports enterprises are becoming increasingly concerned with their “bottom line,” and they need employees who have business skills as well as expertise in the sports industry. The sports industry includes amateur college, minor league and professional level sports. In this century and is an industry that is growing in importance in our economy and society. Our sports management program is one of the few in the country that is housed within a business management department, so we offer our students the opportunity to gain important business management skills while learning about the unique nature of sports organizations.

Option in Business Sustainability. A sustainable enterprise is built around the triple bottom line imperative of protecting and enhancing the current and long-term future of the organization, the quality of life of the people impacted by the organization, and the health of the natural environment. There is a growing need for individuals with training in sustainable enterprises, and the job opportunities for well-trained undergraduates are increasing. The Business Sustainability option prepares students for this growing and exciting field with extra class work in business ethics, corporate social responsibility, and sustainable business practices.

Graduate Programs

The Department of Management offers work leading to the Master of Business Administration and the Doctor of Philosophy in business administration degrees. The Master of Business Administration (MBA) Degree. (See "Business Administration.")

Graduate Certificates

Certificate in Nonprofit Management

A growing number of executives in non-profits are recognizing the need to incorporate contemporary management skills into their organizations. This certificate is designed to highlight management practices used in traditional businesses that can also be applied in the nonprofit context and explore the important interface between for-profit businesses and nonprofit organizations. This certificate is aimed at working professionals who typically join organizations at entry to mid-level management positions without prior business management education. The certificate offers a range of courses that will examine how to apply business practices in nonprofit organizations. Those seeking the graduate certificate will complete 6 hours of required coursework and select another 6 hours of coursework that best fits their situation.

Certificate in Sustainable Business

A sustainable enterprise is built around the triple bottom line imperative of protecting and enhancing the current and long-term future of the organization, the quality of life of the people impacted by the organization, and the health of the planet. A combination of factors has made a focus on sustainability no longer an option for organizations—whether public, private, or governmental. First, from a cost perspective, managers must recognize that their actions (whether
proactive or inactive) that negatively impact people (e.g., its shareholders, employees, customers, communities) can lead to lawsuits. Similarly, by reducing the waste that harms the planet, organizations can minimize costs. Second, from a revenue perspective, the development of green products can provide a competitive advantage in the marketplace. Third, from an ethical perspective, it is simply the right thing to do to protect the planet as well as present and future generations of people from the negative externalities of an organization’s actions. We are building these ideas into both our undergraduate and graduate management programs.

This certificate is aimed at working professionals and offers a range of courses that will examine how to apply business practices to sustainability practices in business. Those seeking the graduate certificate will complete 6 hours of required coursework and select another 6 hours of coursework that best fits their situation.

The Doctor of Philosophy Degree. The PhD in business administration program administered through the Department of Management prepares students for a career in university research and teaching.

The program is flexible and individually structured to meet the needs and objectives of the candidate. Emphasis is placed on understanding the psychological, social, and economic foundations of business administration and training in management specialties of organizational behavior, human resources and strategic management.

PhD students in management concentrate in either organizational behavior or strategic management and pursue two minors. At least one of the minor areas must be taken in the Spears School of Business. As support for the major and minor fields of study, each student is required to attain graduate-level competence in quantitative research methods.

As prerequisites to the program, all candidates must have completed appropriate basic courses in calculus and statistics. In addition, candidates are expected to have a competence in the major functional areas of business—accounting, finance, management, management information systems, management science and marketing. Competence in the functional areas is usually demonstrated through the completion of appropriate graduate courses in each area through a program accredited by the Association to Advance Collegiate Schools of Business (AACSB International).

Competence in planning and executing research must be demonstrated in a dissertation. In addition, each candidate must pass a series of comprehensive qualifying examinations, both written and oral, and a separate, final oral examination of the dissertation itself. To enhance teaching skills, students in residence are required to teach on a quarter-time or half-time basis for at least one semester while earning the degree.

Outstanding students with master's degrees in any field of study are encouraged to apply. The application for admission to the program is evaluated on the basis of (1) undergraduate and graduate grade-point averages, (2) the score on the Graduate Management Admissions Test, (3) a two- or three-page statement describing research interests, (4) three letters of recommendation, (5) evidence of research potential and (6) a personal interview when feasible. It is the responsibility of each student to ensure that all material related to the above criteria is received by the department.

Management Science and Information Systems

Rick L. Wilson—Professor and Head

There is little doubt that emerging technologies of the 21st Century will continue to alter dramatically the way business is conducted. Those who wish to have a leadership role in developing next generation systems should consider a career in information systems and telecommunications. The need for knowledgeable workers with expertise in information systems will continue to increase at substantial rates for the foreseeable future. In fact, a Department of Labor forecast projected that a bachelor's degree in management mathematics and telecommunications for today's Internet-enabled organizations. The integration of information technology throughout all aspects of business coupled with the critical need for responsive information systems has created a strong demand for graduates with expertise in information systems and business administration.

Once MIS students satisfy the first two tiers of requirements mentioned above, they will focus on specialized courses in areas such as systems analysis and design, business programming, data base design and management, expert and decision support systems, data mining applications, data communications and network security, management science methods, enterprise resource planning systems and electronic commerce.

MSCS. The MSCS option allows developing aptitudes in quantitative tools that are especially critical in today's data-driven organization. Additional course work in statistics, operations research, decision analysis and quantitative analysis is possible with an MSCS option.

Information Assurance. The Information Assurance option uses the expertise in the department that led OSU to be named a National Center of Academic Excellence in Information Assurance and Research by the NSA and the Department of Homeland Security. This option provides students with in-depth study and hands-on analysis of critical organizational issues in information assurance and security.

Graduate Programs

The Department of Management Science and Information Systems offers a program that lead to the completion of the Master of Business Administration (MBA), the Master of Science in telecommunication management (MSTM), the Master of Science in management information systems (MIS) and the Doctor of Philosophy in business administration (PhD).

The Master of Business Administration (MBA) Degree. (See "Business Administration.")

The Master of Science in Telecommunications Management (MSTM) Degree. In response to industry’s need for skilled and knowledgeable telecommunications management graduates, Oklahoma State University offers a Master of Science degree in telecommunications management. This program is offered not only through traditional means to on-campus students but also via distance learning technologies to students at remote locations.

The program is currently housed in the Spears School of Business. However, the telecommunications management management program draws on the combined expertise of three OSU colleges—the College of Arts and Sciences, the Spears School of Business and the College of Engineering, Architecture and Technology. As a result, the telecommunications management student will have a traditional home department to achieve a depth of knowledge in one discipline while developing broad knowledge in business, technical and communication disciplines.

This program prepares graduates for managing the telecommunications technologies as well as managing in a competitive environment with telecommunications systems. The graduates of this program are likely to be employed by providers or users of telecommunications technologies.

Telecommunications Management Curriculum. The program curriculum consists of 32-33 credit hours, including eight core courses and three electives. Students may choose either a part-time or full-time sequence. Full-time students can complete the program in one and one-half years while part-time students may complete it in two years.

MSTM candidates have the opportunity to develop broad knowledge in specific elective areas chosen to best fit their career aspirations.

Admission Requirements. Qualified graduates of colleges and universities of recognized standards are eligible to seek admission to the OSU Graduate College. Applicants must submit the completed application form to the Graduate College with official transcripts of all academic work and degrees received.

In addition to the OSU Graduate College's standard requirements, the telecommunications management admission committee will consider students' letters of recommendation, GMAT or GRE scores, previous academic performance and telecommunications experience.

Information about the program is available on the Internet at spears.okstate.edu/graduate/mstm/.

The Master of Science in Management Information Systems (MIS) Degree. This degree program combines strong theoretical concepts with intense hands-on instruction, helping graduates not only to understand business processes and the concepts behind the information systems they work with, but also to develop, modify, use and protect these rapidly-changing computing systems through their technical expertise.

The MS in MIS is a 33-34 hour program featuring a core of 19 hours (18 for part time), including a business practicum, plus three options to highlight different areas: digital business management, knowledge management systems and information assurance and security. These three options afford the student opportunities, respectively, to focus on software design and implementation, information retrieval and analysis or management of network and information systems security to protect information systems against unauthorized intrusion.

Admission requirements for the MS in MIS are similar to the admission requirements for the other master's programs in the Spears School of Business.

Information about the program is available on the Internet at spears.okstate.edu/graduate/msmis/.
The Doctor of Philosophy (PhD) Degree. The PhD in business administration program administered through the Department of Management Science and Information Systems provides intensive study in management information systems, management science, operations management and telecommunications and management. It prepares the student for significant professional contributions in university teaching and research.

The program is flexible and individually structured to meet the needs and objectives of the candidate. Emphasis is placed on understanding the analytical and theoretical foundations of business administration, applications in the depth area of specialization and development of research capabilities in the discipline.

As prerequisites to the program, all candidates are to have completed appropriate basic courses in calculus and statistics. Likewise, candidates are expected to have a basic competence in the major functional areas of business—accounting, finance, management, management information systems, management science and marketing. Competence in the functional areas is usually attained by documenting that the student has recently completed the appropriate graduate courses in each area through a program accredited by the Association to Advance Collegiate Schools of Business (AACSB International).

Competence in planning and executing research must be demonstrated in a dissertation. In addition, each candidate must pass a series of comprehensive qualifying examinations, written and oral, and a separate, final oral examination of the dissertation. To enhance teaching skills, all PhD students in residence are required to teach on a quarter-time or half-time basis for at least one semester while earning the degree.

Outstanding students with master's degrees in any field of study may apply. The application for admission to the program is evaluated on the basis of (1) undergraduate and graduate grade-point averages, (2) the score on the Graduate Management Admissions Test, (3) a two- or three-page statement describing goals and academic interests, (4) three letters of recommendation, (5) evidence of research potential and (6) a personal interview when feasible. It is the responsibility of each applicant to ensure that all material related to the above criteria is received by the department.

Marketing

Joshua L. Wiener, PhD—Professor and Head

The Department of Marketing provides two quite significant majors within the Spears School of Business. One of these is marketing. This is an exciting field of study leading to a variety of job opportunities both in the private sector and in not-for-profit organizations. Also, it provides an excellent career path to top management within an organization.

The second major provided by the department is international business. Almost every business has international operations or is affected by events, competitors and conditions in the global economy. This opens career opportunities in the field and prepares one for successful management within the domestic economy.

Marketing. Marketing is concerned with the identification of wants and needs by buyers and the determination of products, prices and communication methods to satisfy those wants and needs. The buyers may be individuals or organizations, and their buying may include products or services. Since the economic system is dependent on the ability of organizations to match resources with marketplace needs, marketing is gaining in prominence every year.

A marketing graduate will likely be involved in performance and management of many traditional areas of decision-making—sales, advertising, logistics and marketing research. In addition, one frequently assists in product planning, developing marketing information systems and general management. Since these tasks are necessary for all types of organizations, employers of marketing graduates include manufacturers, banks, hospitals, retailers and not-for-profit organizations.

The effective marketing manager must possess a perspective and capability that reflect a three-dimensional program of study: (1) a liberal education in the sciences, humanities, behavioral and social sciences, mathematics and communications; (2) an adequate knowledge of the major functional areas of business and (3) a high-level competency in marketing.

One's liberal education is emphasized during the freshman and sophomore years. The study of the functional areas of business begins in the sophomore year and continues into the junior year. During the junior and senior years, the focus is on marketing. In addition to the introductory course that provides an overview of the field of marketing, the student takes courses in areas such as consumer behavior, consumer decision making, services management, electronic commerce, marketing research, channels and international marketing. While studying marketing, one typically selects courses in other fields such as international business, management, management information systems, finance, advertising and public relations to support a particular career choice within the marketing field.

Certificate in Customer—Employee Interaction. Interactions between frontline employees and their customers form the building blocks from which businesses are made. Many undergraduate students join organizations at entry-level positions where the focus is on customer-related activities, including sales, retail, and customer service. Such training will benefit not only students who upon graduation begin careers in retailing, sales or customer service, but also those who will eventually practice law, medicine, or own their own business where successfully managing customer interactions forms the foundation for success.

The certificate offers a range of courses to give specialized training on effective customer interaction. All required coursework fits within the structure of the marketing undergraduate degree program. Those seeking the certificate will complete 9 hours of required coursework and select another 6 hours of coursework that best fit their particular interests.

Graduate Programs

The Department of Marketing offers a program leading to the Master of Business Administration and the Doctor of Philosophy in business administration degrees. In addition, the Department of Marketing in conjunction with the Management Science and Information Systems department offers a program leading to the Master of Science in Information Systems.

The Master of Business Administration (MBA) Degree. (See "Business Administration.")

The Doctor of Philosophy Degree. The PhD in business administration program through the Department of Marketing provides intensive study in marketing. It prepares the student for significant professional contributions in university teaching and research or staff positions in business or government.

The program is quite flexible and individually structured to meet the needs and objectives of each candidate. The program is designed for candidates wishing to become researchers and researchers in the field of marketing. Highly student oriented, the program focuses on training individuals in current marketing theory and research techniques. Collaboration between students and faculty is strongly encouraged.

Program Content. The student will take 15 hours of PhD seminars in marketing. These seminars must include a nine-hour minor in one of the following areas such as economics, management, sociology or psychology. As support for the major and minor fields of study, extensive course work (normally 18 credit hours) in the area of quantitative/research methodology is required.

As prerequisites to the program, all candidates are to have completed appropriate basic courses in calculus and statistics. Likewise, candidates are expected to have a basic competence in the major functional areas of business—accounting, finance, operations management, organizational theory, economics and marketing. Competence in the functional areas is usually attained by documenting that the student has recently completed the appropriate graduate course in each area in an MBA program accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Application Procedure. Outstanding undergraduate or graduate students from any field of study may apply. For those with an MBA, the program will normally consist of two years of course work and two years of dissertation work. For those without a master's degree, the plan of study for the PhD degree will typically allow for the granting of an MBA prior to completion of the PhD degree. Applications for admission to the program are evaluated on the basis of (1) undergraduate and graduate grade-point averages, (2) the score on the Graduate Management Admissions Test or Graduate Record Examination, (3) a two- or three-page statement describing goals and academic interests, (4) three letters of recommendation, (5) evidence of research potential and (6) a personal interview, when feasible. It is the responsibility of each applicant to ensure that all materials related to the above criteria are received by the Department of Marketing. Application forms and detailed explanation of the PhD degree in business administration with an emphasis in marketing are available through the department.

SAS and OSU Data Mining Certificate. In the last ten years due to rapid advances in computing power and the availability of massive data bases, there has been a strong demand for students trained in the area of data mining. In response to this demand, the Department of Marketing, with the active support of the Department of Management Science and Information Systems (MSIS) partnered with SAS, a leading provider of data analysis and data mining software, to offer graduate students with technical backgrounds an opportunity to earn a SAS/OSU data mining certificate by taking 12 credit hours of graduate coursework offered by Marketing and Information Systems.

Program Content. The program curriculum (developed in partnership with SAS) focuses on establishing an understanding of the functionality of large databases, the methods used to access and manipulate data from such databases, and the methods used to analyze data patterns (both statistical and non-statistical), make predictions/forecasts and interpret such analyses in the context of business applications. Established courses from the Marketing Department and the MS in MIS program curriculum along with some newly-developed courses, including hands-on courses to build actual experience in mining datasets, give students the opportunity to develop relevant skills in data mining. Students take 6 credit hours of core courses and 6 credit hours of approved elective courses.

More details about this program are available on the website: http://spearsokestate.edu/sasosu

Graduate Certificate in Business Data Mining. This certificate program is modeled after the SAS/OSU Data Mining Certificate except the intended target audience for this certificate are working professionals with technical backgrounds who may not want to pursue a full blown masters program but are
willing to enhance their data mining skills by taking focused courses. The classes in this program are offered via the distance-learning (online) mode enabling non-traditional working professionals to complete the graduate certificate in business data mining while continuing to work.

Program Content. The program curriculum (developed in partnership with SAS) is similar to the SAS/OSU Data Mining Certificate curriculum. The core courses are the same between the two programs, but the elective courses are somewhat different. Students take 6 credit hours of core courses and 6 credit hours of approved elective courses.

More details about this program (including procedure and admission requirements) are on the website: http://watson.okstate.edu/datamining/.

SAS and OSU Marketing Analytics Certificate. This certificate is designed for business professionals with non-technical backgrounds or MBAs to educate them about marketing applications of contemporary data analysis techniques without emphasizing programming aspects.

Program Content. The program curriculum (developed in partnership with SAS) balances the need for understanding applications of quantitative and statistical modeling along with data visualization, data exploration and interpretation. Hands-on courses to build actual experience in using data to make better marketing decisions will give students the opportunity to develop relevant skills in marketing analytics. Several new courses from the Marketing department and some existing courses from the Marketing and MSIS department are in the program. Students take six credit hours of core courses and six credit hours of approved elective courses.

More details about this program are available on the website: http://analytics.okstate.edu/sasanalytics/.

Graduate Certificate in Marketing Analytics. This certificate program is modeled after the SAS and OSU Marketing Analytics Certificate except the intended target audience for this certificate are working professionals with non-technical background who may not want to pursue a full blown masters program but are willing to enhance their marketing analytics skills by taking focused courses. The classes in this program are offered via the distance-learning (online) mode enabling non-traditional working professionals to complete the graduate certificate in business data mining while continuing to work.

Program Content. The program curriculum (developed in partnership with SAS) is similar to the SAS and OSU Marketing Analytics Certificate curriculum. The core courses are the same between the two programs, but the elective courses are somewhat different. Students take six credit hours of core courses and six credit hours of approved elective courses.

More details about this program (including procedure and admission requirements) are on the website: http://watson.okstate.edu/marketinganalytics/.

International Business

The major in international business provides a fundamental understanding of the global business environment and develops decision-making capabilities in the international setting. It spans cultures, economic conditions, political and legal systems and competitive climates.

This major has the same General Education and Common Body requirements as all other Spears School majors. In addition, it includes specific international business courses, international environment courses, modest foreign language competency and a minor field in any business field. Students are encouraged to seek study-abroad opportunities and other avenues for expanding their cross-cultural understanding. The international business major requires 39 credit hours.
Center for Health Sciences

College Administration

Kayse M. Shrum, DO—President, Provost and Dean
William Peetit, DO—Interim Senior Associate Dean for Academic Affairs, Associate Dean for Rural Health
Johny Stephens, PharmD—Interim Vice President for Research and Chief Operating Officer
Eric Polak, MBA—Vice President for Administration and Finance
Bruce Benjamin, PhD—Associate Dean for Biomedical Sciences, Interim Vice Provost for Graduate Studies
Vivian M. Stevens, PhD—Associate Dean for Enrollment Management
Joan E. Stewart, DO, MPH—Associate Dean for Clinical Education
Jenny Alexopulos, DO—Director of Medical Education for OSU Medical Center, Medical Director for OSU Physicians
Gary L. Slick, DO—Director of Medical Education for Teaching Health Center

Campus Address and Phone:
1111 West 17th St, Tulsa, OK 74107 - 918.582.1972, 800.677.1972
Website: www.healthsciences.okstate.edu E-mail: admissions@chs.okstate.edu

College of Osteopathic Medicine

As health care grows more sophisticated, the supply of primary care physicians will continue to be a challenge. The OSU College of Osteopathic Medicine is helping to address that challenge and to fulfill a critical need in Oklahoma, and beyond, by training physicians who are qualified to treat every member of the family and enhance the health care process by applying his or her knowledge to treat the whole person.

The majority of graduates (nearly 60%) of the OSU-College of Osteopathic Medicine practice in the primary care fields—family medicine, pediatrics, internal medicine and obstetrics/gynecology. The remaining 40% do their postdoctoral training in other specialties and subspecialties—anesthesiology, neurology, psychiatry, radiology, surgery, emergency medicine, dermatology and oncology, to name a few. Regardless of the field they pursue, our students are trained to be excellent physicians, beginning with a strong background in general osteopathic medicine.

The College was founded in 1972 in response to a physician shortage in the small towns and rural areas of Oklahoma. The College opened its doors in 1974 and graduated its first class in 1977. In 1988, the College was merged with Oklahoma State University and confirmed its mission to prepare students to be primary care physicians with emphasis in rural medicine. In 2001, the Oklahoma State legislature added another designation by creating the OSU Center for Health Sciences—the umbrella organization for the College of Osteopathic Medicine, as well as graduate programs in biomedical and forensic sciences.

The main campus is located on 16 acres along the west bank of the Arkansas River with an impressive view of downtown Tulsa. Modern buildings house extensive conference facilities, expanded classroom space, a medical bookstore, and a newly opened 156,000 square foot forensics science and medical research facility. The primary outpatient training clinic located a half-mile south, is known as the OSU Medical Center. Serving the Tulsa and west Tulsa communities, this clinical teaching facility can accommodate up to 3,000 patient visits a month. It is both a teaching clinic for medical students, interns and residents, and a health care resource for residents of the west Tulsa area.

The Medical Center provides comprehensive health care and is staffed by licensed physicians and other health care professionals who supervise students in the care of patients. Three satellite OSU Physician health care centers are also located in downtown Tulsa, serving more than 100,000 patient visits annually. A new primary care clinic in far east Tulsa was opened in the spring of 2010. The college has a 50-year, long-term agreement with OSU Medical Center that insures a long term training relationship between the two partners. The agreement secures OSU’s residency programs at the hospital, which are operated under a City of Tulsa trust and managed by St. John Health Systems.

Promoting a patient-centered approach to health care, osteopathic physicians are concerned with the entire patient and traditionally have excelled in general and family health care. The doctor of osteopathic medicine is a fully-trained and licensed physician who selectively utilizes all accepted scientific modalities to maintain and restore health. Osteopathic physicians and surgeons are licensed in every state to practice all phases of medicine, and offer their patients the added dimension of health care through osteopathic manipulation, a hands-on technique that uses palpation and manipulative procedures of the musculoskeletal system to diagnose and treat illness.

Minimum Admission Requirements

At the time of application, the applicant must have an overall grade-point average of at least 3.00 (on a 4.00 scale), a pre-professional science GPA of at least 2.75, and a minimum of 7 average score on the Medical College Admissions Test (MCAT). All applicants must take the MCAT. They are encouraged to take the examination in the spring of the year prior to making application. Under special circumstances, the College may use discretion to admit students who do not meet these minimum requirements.

At the time of entry, the applicant must have completed:
1. At least 90 semester hours and not less than 75 percent of the courses required for the baccalaureate degree at a regionally-accredited college or university;
2. Satisfactory completion of the following courses, with no grade below a "C" (2.00 on a 4.00 scale)
   - English (six semester hours)
   - Biology (eight semester hours), including laboratory
   - Physics (eight semester hours), including laboratory
   - General chemistry (eight semester hours), including laboratory
   - Organic chemistry (eight semester hours), including laboratory
3. Applicants must have taken at least one upper-division (3000-4000 level) science course, including laboratory. Examples include, but are not limited to: biochemistry, comparative anatomy, cellular biology, embryology, microbiology or molecular biology, histology, physiology, and genetics.

The annual application deadline is February 1. The deadline for supplemental application materials is March 1.

An on-campus interview with the Applicant Interview Committee is by invitation only. Interviews are conducted by clinical and basic science faculty members, as well as alumni. Applicants must participate in the interview to qualify for further consideration. Interview results and other data submitted will be considered when determining which applicants have demonstrated appropriate levels of scholarship, aptitude and motivation for admission to the program. Class size is limited to 106 students (in 2010).

OSU-COM seeks to admit students who want to become primary care physicians in rural and underserved Oklahoma. The Rural and Underserved Primary Care Early Admissions Program allows students who want to become dedicated primary care physicians practicing in rural and underserved Oklahoma to complete undergraduate and pre-doctoral training in seven years. For more information on early admissions please visit www.healthsciences.okstate.edu/com/admissions/options.php

Selection Factors

The College considers applications for admission from all qualified candidates without regard to age, gender, creed, race, disability, or national origin. Preference is given to Oklahoma residents. Those who have experienced unequal educational opportunities for social, cultural or racial reasons are particularly urged to apply. Applicants must be U.S. citizens or permanent residents of the U.S. Non-U.S. citizens must have a permanent resident visa ("green card") at the time of application in order to be considered for admission.

College Curriculum

The curriculum at the OSU College of Osteopathic Medicine places significant focus on primary care. The four-year program emphasizes the integration of biomedical sciences with clinical systems. The curriculum includes early hands-on clinical experiences with patients, patient models, and simulations. Instructional methods are student-centered and include traditional lecture, and small group and team-based learning. Problem-solving and information retrieval skills are emphasized to produce and develop skills that support lifelong learning.

The culture of OSU College of Osteopathic Medicine encourages students to establish an academic relationship with faculty members and community-based physicians. The curriculum emphasizes integration of biomedical with clinical and behavioral sciences to permit the full comprehension of the clinician’s work and promote a holistic approach to the care of patients and their families. Students receive training in all areas of medicine, with additional emphasis on osteopathic manipulative medicine. Incorporated within the OSU-COM curriculum is a Rural Medical Track (RMT) that stresses the unique nature and characteristics of a rural practice, provides a pathway for student matriculation into a rural primary care residency, and supports residency graduates in the establishment of a practice in a rural or underserved Oklahoma location. The first semester focuses on the foundations of biomedical and clinical sciences along with an introduction to patient care. Starting in the second semester and continuing through the end of the second year, students are introduced to a
total of 11 clinical systems that systematically prepares students for addressing conditions typically seen in the primary care environment. The third and fourth years are comprised of clinical rotations, which are community based, consisting of clerkship experiences in hospitals and clinics where students observe patient care and participate in the evaluation and treatment of patients under physician faculty supervision. Required rotations include surgery, obstetrics-gynecology, pediatrics, psychiatry, internal medicine, family medicine and emergency medicine. Many rotations are completed at OSU Medical Center in Tulsa, the country’s largest osteopathic hospital, as well as INTEGRIS Southwest Hospital in Oklahoma City. The balance of the supervised clinical clerkships are in communities throughout Oklahoma in which students spend two months on a Community Hospital Rotation and one month on both a Community and Rural Clinic Rotation. Students may also fulfill requirements at various medical institutions across the country.

Students graduate from the four-year program with the Doctor of Osteopathic Medicine (DO) degree. Although 64 percent of graduates enter primary care, graduates are prepared to enter residencies in all medical specialties fields. This training period lasts a minimum of three years with several specialties requiring up to five years of postgraduate education.

Accreditation
The College is accredited by the Council on Osteopathic College Accreditation (COCA) of the American Osteopathic Association, the recognized accrediting agency for institutions that educate osteopathic physicians. The Oklahoma State Regents for Higher Education are empowered by the Oklahoma Constitution to prescribe standards for higher education applicable to each institution in the Oklahoma State System of Higher Education.

Financial Aid
Financing a medical education should be seriously considered. The primary responsibility for meeting your educational costs rests with the student and his or her family; however the Office of Student Financial Aid makes every attempt to assist him or her financially.

The Office of Student Financial Aid supports the mission of the University by enabling students and families to reduce or eliminate financial barriers that might prohibit their participation in the programs offered by OSU Center for Health Sciences. The office administers need-based financial aid programs funded by federal, state, University, and private sources in the form of Federal Stafford loan, Perkins loan, Graduate PLUS loan, employment, as well as need- and merit-based scholarships. The office also administers the Federal non-need based loan programs (Unsubsidized) and provides information and support to students interested in the alternative loan options available to them.

Tuition and fees at the College of Osteopathic Medicine (for the 2010-2011 school year) totals $21,192.93 per year for Oklahoma residents and $39,830.65 per year for out-of-state residents. (*subject to change)

Most financial aid is renewable on an annual basis, provided there is adequate funding and the student remains eligible (enrolled in a matriculated program; in good academic standing, and with continued need for need-based aid. To qualify, each student should file the Free Application for Federal Student Aid (FAFSA) by February 15th. Students are encouraged to continue to file after this date; however, consideration for funds will be given on a first-come basis.

The FAFSA and other required applications may be obtained by contacting: Office of Financial Aid - OSU College of Osteopathic Medicine; 1111 West 17th Street, Tulsa, OK 74107-1898; Students may apply online at www.fafsa.gov/ (School code is G11282).

Graduate Education
The College offers MS, PhD, DO/MS, and DO/PhD graduate degree programs in biomedical and forensic sciences. The programs are an excellent option for students who wish to pursue careers in medical research or academic medicine. The MS program offers a thesis and non-thesis option, with both programs designed to be accomplished in two years, with a minimum of 32 credit hours. The PhD program is designed to be accomplished in four years, with a minimum of 90 credit hours. The DO/PhD program is designed to be accomplished in a minimum of seven years. The first two years are the basic science years of the program. The middle three years are graduate study, research and dissertation of the PhD program. The final two years are the clinical sciences years of the DO program. The DO/MS program is designed to be accomplished in a minimum of five years. The first year is primarily the graduate portion of the program. The last four years consist of the medical portion of the degree, with any remaining graduate work completed during the first year of medical school and subsequent summers. DO/MS students are encouraged to pursue a non-thesis Master’s Degree. The MS in Forensic Sciences is designed for individuals pursuing careers in crime labs, investigative agencies, or research institutions. The degree requires 39 credit hours and may be completed in 2 to 7 years. The thesis program offers specialization in the areas of forensic biology/DNA, forensic pathology/death scene investigation, forensic pathology/microbiology, forensic psychology, and forensic toxicology/trace evidence. Non-thesis options in forensic science administration and forensic document examination are for individuals with related professional experience. First-year classes in the MS/thesis program are online, while all classes for MS/non-thesis options are available online.

The DO/MBA is an accelerated program that allows DO students to gain their MBA through the College of Business Administration in a single year. This 36-hour program captures 30 hours of the MBA core coursework in the fall and spring semesters. Six hours of elective credit can be shared from the DO coursework or business electives of the student’s choice.

Honor and Service Organizations
The College emphasizes community service, and many students volunteer their time in giving school and athletic physicals, visiting nursing homes, working with school children, and working at College-sponsored health fairs or the annual Cassani Osteopathic Scrub Run. Listed below are official student organizations.

American College of Osteopathic Emergency Physicians
American College of Osteopathic Pediatricians
American College of Osteopathic Family Physicians—Undergraduate Chapter
American Medical Student Association
American Medical Women's Association
Association of Military Osteopathic Physicians and Surgeons
Association of Native American Medical Students
Atlas Fraternity (social)
Biomedical Science Graduate Student Association
Christian Medical Society
Forensic Science Student Organization
Gay and Straight Alliance in Medicine
Oklahoma Osteopathic Obstetrics and Gynecology Student Association
Osteopathic Sports Medicine Society
Sigma Sigma Phi (honor society)
Student Associate Auxiliary
Student Interest Group in Neurology
Student National Medical Association
Student Osteopathic Association of Radiology
Student Osteopathic Internal Medicine Association
Student Osteopathic Medical Association
Student Osteopathic Psychiatry Association
Student Osteopathic Research Association
Student Osteopathic Rural Medicine Club
Student Osteopathic Surgical Association
Student Senate
Undergraduate American Academy of Osteopathic Medicine
Wilderness Medical Association
Center for Veterinary Health Sciences

College Administration
Jean E. Sander, DVM, MAM, DACVP—Dean
Chris Ross, DVM, PhD—Associate Dean for Academic Affairs
Jerry Malayer, PhD—Associate Dean for Research and Graduate Education

Campus Address and Phone:
205 McElroy Hall, Stillwater, OK 74078
405.744.6654, Fax: 405.744.6633
Website: www.cvhs.okstate.edu

Doctor of Veterinary Medicine Program
A primary objective of the Center for Veterinary Health Sciences is to educate veterinarians for private practice. In addition, the professional curriculum provides an excellent basic biomedical education and training in diagnosis, disease prevention, medical treatment and surgery. Graduates are qualified to pursue careers in many facets of veterinary medicine and health-related professions.

Preparatory Requirements
In preparation for the professional DVM training the student must complete both prescribed and elective collegiate courses. The minimum prescribed preparatory studies, totaling 64 semester hours of undergraduate course work, can be completed in three calendar years. Most of the entering veterinary medical students in recent years have had three to four years of preparatory training, often earning a bachelor's degree.

Admission Requirements
College course requirements for entry into veterinary medical college may be completed at any accredited university or college that offers the required courses. Pre-veterinary curricula are available at Oklahoma State University through the Division of Agricultural Sciences and Natural Resources and through the College of Arts and Sciences. Both offer programs of study in pre-veterinary medical sciences, which provide for the award of a bachelor's degree after successful completion of the first or second year of veterinary medical studies. Requests for information on pre-veterinary medical study programs and applications for admission to such programs should be addressed to the dean of either the Division of Agricultural Sciences and Natural Resources or the College of Arts and Sciences.

Listed below are the minimum course prerequisites for consideration for admission to the Center for Veterinary Health Sciences:

English—nine semester hours including six hours of composition and three hours of an English elective. Course work in speech or technical writing is encouraged.

Chemistry—general inorganic chemistry including labs; an organic chemistry series (8 semester hours) designed for pre-veterinary and pre-medical students that includes both aliphatic and aromatic compounds or survey course with lab (5-8 hours); and 3 semester hours of biochemistry.

Physics—Eight hours of general physics.

Mathematics—three semester hours. Minimum level of college algebra or higher math. Course work in statistics is not acceptable.

Biological science—16 semester hours. Courses in zoology, general biology, microbiology and genetics are required. These courses must include laboratory work.

Animal Nutrition—three semester hours of the basic principles of animal nutrition, including digestion, absorption and metabolism of the various food nutrients and ration formulation. Courses in human nutrition are not acceptable.

Humanities and social science—six semester hours.

Business electives—although not required, courses in business are encouraged.

The information on admission requirements was current at the time of publication but is subject to change. The admission requirements are under annual review and changes may be made at any time.

Scholarships
The College has scholarships which may be available to matriculating veterinary medicine students; most are based on academic achievement.

Application Process
Admission is competitive and enrollment in veterinary medicine is restricted. Applications for admission must be submitted by October 1, and a new class enters the College each year at the beginning of the subsequent fall semester.

Applicants who are legal residents of Oklahoma will be given first priority. In addition, a limited number of nonresidents will be selected. Questions about residency should be directed to the Office of the Registrar, Oklahoma State University. Requests for application materials should be directed to the manager of admissions and records, Center for Veterinary Health Sciences.

Students are admitted as candidates for the Doctor of Veterinary Medicine degree on the basis of records of academic performance in preparatory studies, GRE test, and references to determine personal characteristics and career motivation. Details concerning admissions procedures are available via the Center for Veterinary Health Sciences website www.cvhs.okstate.edu.

The veterinary curriculum extends over four calendar years. The first two academic years conform to the normal semester system of the University. The last two academic years are continuous, with the fourth starting shortly after completion of the third. The fourth year is clinical in nature and classes are highly organized in the Boren Veterinary Medical Teaching Hospital. The fourth year is organized into three-week rotations to provide for lower faculty-student ratio and more efficient use of clinical facilities and resources.

Veterinary Medical Research Scholars
Thanks to opportunities in research for veterinary students at OSU, those receiving degrees can qualify for ‘veterinary medical research scholar designation’ on the transcript, a valuable designation to achieve. To be considered, the student must:

a. For a minimum of two semesters or in full-time summer employment, be engaged in and contribute substantively to research or creative inquiry with a faculty mentor and/or faculty-led team. The supervising mentor may be employed at Oklahoma State University or at another university.

b. Present his or her research or creativity project at a state, regional or national conference or juried artistic venues such as art exhibitions, concerts, or festivals;

c. Publish his or her work or a manuscript related to the creativity product in a refereed research or professional journal (or have it accepted for publication).

Applicants should apply through the Office of the Associate Dean for Academic Affairs, Center for Veterinary Health Sciences and Recognition at least six weeks before the end of their studies at OSU. A committee appointed by the Faculty Council will examine the materials and determine whether or not the candidate will be approved and recognized.

For further information contact the office at 405.744.6595 or email chris.ross@okstate.edu.

Veterinary Biomedical Sciences Graduate Program
Kenneth Clinkenbeard, DVM, PhD—Professor and Coordinator of Graduate Studies

The veterinary biomedical sciences (VBS) graduate program is a multidisciplinary program intended to provide students a broad base of research areas to address individual student interests. The program is administered within the Center for Veterinary Health Sciences but may involve faculty from other colleges. Programs of research and study leading to the degrees of Master of Science and Doctor of Philosophy are available within the broad areas of focus: physiological sciences, pathobiology and clinical sciences. The program is designed to prepare individuals for careers in teaching and research, and specialization is possible within each area dependent upon student and faculty interests and available funding.

Current areas of research focus include molecular, cell and developmental biology, clinical sciences (including laser applications and oncology); infectious and parasitic diseases (including vector-borne diseases, bacterial and viral diseases in wild and domestic animals); pathobiology; and toxicology. Faculty and their specific areas of interest are available through the graduate coordinator (ken.clinkenbeard@okstate.edu) or online at www.cvm.okstate.edu/graduate.

Prerequisites. Candidates for admission must possess a bachelor's degree or...
equivalent, with a background in biological or physical sciences. Although there are no absolute performance level requirements, applicants with quantitative GRE scores at the 75th percentile or greater and GPAs of 3.0 (out of 4.0) or greater, will receive strongest consideration.

The Master of Science Degree. The MS may be earned with 30 credit hours beyond a bachelor’s degree or 21 hours beyond the DVM degree, including not more than six credit hours for the thesis. The plan of study is designed to meet the student’s needs and interests and typically includes two credits of seminar, one course in statistics, and courses in molecular or cell biology and pathophysiology. The student must also pass a final oral examination covering the thesis and related course work.

The Doctor of Philosophy Degree. The PhD requires a total of 90 credit hours beyond the bachelor’s degree or 60 hours beyond the MS or DVM degree, including up to 45 credit hours for research and dissertation. The plan of study is designed to meet the student’s needs and interests and typically includes courses in cell and molecular biology, pathophysiology, statistics and seminar. Written and oral qualifying examinations are required. Students must prepare a research proposal and complete and defend a dissertation based on original research.

Application Procedure. Applications are made to the Graduate College (http://www.gradcollege.okstate.edu/) and are accepted at any time; however, all documents should be received prior to March 1st for admission to the fall semester, and July 1st for the spring semester. Applicants are required to submit official transcripts of all college-level work and scores for the GRE general test. International applicants are required to take an English proficiency exam TOEFL or equivalent exam, unless a student is from a country where English is a first language. For students seeking graduate teaching assistantships, a score of 22 or greater on speaking part of the internet-based TOEFL (ibT) is required. In addition, the applicant will submit a statement of purpose stating their preparation for graduate study as well as how earning a graduate degree will further their educational and career goals and will have three persons knowledgeable of their preparation for graduate study write and submit letters of reference.

Information about faculty research interests is available upon request to the graduate coordinator (ken.clinkenbeard@okstate.edu). After acceptance to the graduate program, students select a major professor and an advisory committee and develop a plan of study consistent with the VBS graduate program requirements and subject to approval of the dean of the Graduate College.

Assistantships. A limited number of graduate teaching and research assistantships are available.

Internship and Residency Programs. Internships and residency programs in clinical medicine and surgery are offered through the Department of Veterinary Clinical Sciences. Residency programs in pathology are offered through the Department of Veterinary Pathobiology.

Veterinary Clinical Sciences

G. Reed Holyoak, DVM, PhD, DACT—Bullock Professor and Department Head

Internship and Residency Programs. The department offers graduate professional programs (internships and residencies). Internships are one-year post-DVM clinical programs in small or large animal medicine and surgery. Internships are designed in part to prepare students for residencies or graduate academic programs. Currently internships are offered in small animal medicine and surgery, small animal internal medicine, equine internal medicine, equine theriogenology, food animal medicine and surgery, anesthesiology, and diagnostic imaging. Residencies are three-year clinical programs in various disciplines designed in part to prepare for specialty board certification. Currently, residencies are offered in small animal surgery, small animal internal medicine, equine internal medicine, equine surgery, food animal medicine and surgery, and theriogenology. Graduate academic programs may be available in association with residencies.

Application Procedure. Applications are accepted at any time and are considered as positions become available. Most open positions are listed in the Veterinary Internship/Residency Matching Program at www.virmp.org.

Veterinary Pathobiology

James H. Meinkoth, DVM, PhD, DACVP—Interim Department Head

Residency programs in anatomical and clinical veterinary pathology are offered. Candidates must have the DVM degree or equivalent. The anatomical and clinical pathology residency programs are three years with options to enter into the PhD program. The programs are designed for those interested in diagnostic veterinary pathology and board certification by the American College of Veterinary Pathologists. Residency training occurs through the Veterinary Medical Teaching Hospital and through the Oklahoma Animal Disease Diagnostic Laboratory. The program involves extensive diagnostic casework on primarily domestic animals and includes weekly case conferences and seminars. In addition, abundant archived materials are available for the specialty board preparation.

Application Procedure. Usually one new residency training position is available each year in anatomic pathology and two of every three years in clinical pathology. Open positions are listed at the ACVP website (http://acvp.org/residents/TrainingCenter.cfm) and typically in the “Educational Opportunities” section of the Journal of the American Veterinary Medical Association.
College of Agricultural Sciences and Natural Resources

Agricultural Economics
Mike Woods, PhD—Professor and Head

Regents Professors: B. Wade Bronson, PhD; Gerald A. Dookson, PhD; Shida R. Henneberry, PhD; Phil Kenkel, PhD; Jayson L. Lusk, PhD

Professors: Brian Adam, PhD; Chunjin Chung, PhD; Cynda R. Clary, PhD; Cheryl S. DeVusyt, PhD; Eric DeVusyt, PhD; Francis M. Epplin, PhD; David Henneberry, PhD; Rodney Holcomb, PhD; Notie H. Lamsford, PhD; Ross O. Love, PhD; Derrell S. Peet, PhD; Larry D. Sanders, PhD; Raymond J. Schatzter, PhD; Merritt Taylor, PhD; Daniel S. Tilley, PhD; James N. Trapp, PhD; Michael D. Woods, PhD

Associate Professors: Tracy Boyer, PhD; Shannon Ferrell, JD; Rodney Jones, PhD; F. Bailey Norwood, PhD; Kellie Raper, PhD; Arthur Stoecker, PhD; Jeff Vitale, PhD; Brian Whitacre, PhD

Assistant Professors: Jody Campiche, PhD; Richard T. Melstrom, PhD; David Shideler, PhD

Agricultural Education, Communications and Leadership
Robert Terry, Jr., PhD—Professor and Head

Professors: D. Dwayne Cartmell, PhD; Charles Cox, EdD; M. Craig Edwards, PhD; James P. Key, EdD (emeritus);
Shelly R. Sitton, PhD; Penny L. Weeks, PhD; William G. Weeks, PhD

Associate Professors: J. Shane Robinson, PhD; Jeff Sallee, PhD

Assistant Professors: Marshall Baker, PhD; Traci Naile, PhD; Jon W. Ramsey, PhD; Angel Riggins PhD

Instructors: Nicholas R. Brown, PhD

Agriculture (general)
Professor and Associate Dean, Academic Programs: Cynda R. Clary, PhD
Professor and Assistant Dean, Academic Programs: W. Stephen Dammon, PhD

Interim Director, International Programs: Adele Tongco, EdD

Regents Professor and Director, Masters of Agriculture in International Agriculture: Shida R. Henneberry, PhD

Coordinator, Prospective Student Services: Kristi Bishop, MS

Coordinator, Student Success: Amy Gazaway, MS

Graduate Certification: Patricia Hood, BS

Animal Science
Clyt Rusk, PhD—Professor and Head

Clint Krehbiel, PhD—Regents Professor and Assistant Head

Regents Professor: Robert F. Wettmann, PhD

Professors: W. Stephen Dammon, PhD; Gerald Q. Hitch, PhD; Gerald W. Horn, PhD; David L. Larkin, PhD; Peter Muriana, PhD; Leon J. Spicer, PhD; Guolong Zhang, PhD

Associate Professors: Scott Carlex, PhD; Steven Copec, PhD; Udaya Desai, PhD; Mark Z. Johnson, PhD; Gretchen Maif, PhD; Chris Richards, PhD; Deb VanOverbeke, PhD

Assistant Professors: Blake Bloomer, PhD; Jennifer Hernandez-Gifford, PhD; Divya Jaruni, PhD; Michele Calvo-Lorena, PhD; Sara Place, PhD; Ranjith Ramanathan, PhD; Megan Rolf, PhD; Dan Stein, PhD

Assistant Extension Specialists: Rusty Gou, MS; Gant Mower, MS

Research Associates: Craig Gifford, PhD; Lakshmi Sunkara, PhD

Coordinator, Student Success: LJ Bernhard, MS

Biochemistry and Molecular Biology
John E. Gustafson, PhD—Professor and Head

Regents Professors: Robert L. Matts, PhD; Ulrich K. Melcher, PhD; Andrew J. Mort, PhD

Professors: Randy L. Allen, PhD; Patricia Rajas-Duarte, PhD; Jose L. Souza, PhD

Associate Professors: Patricia Canaan, PhD; Junpeng Deng, PhD; Ramamurthy Mahalingam, PhD; Rita Miller, PhD; Ramanjula Sunkar, PhD

Assistant Professors: Donald Ruhl, PhD; Kevin Wilson, PhD

Associate Research Professor: Estela L. Arrese, PhD

Assistant Research Professor: Yongfang Li, PhD

Associate Research Scientists: Steven D. Hartson, PhD; Peter R. Hoyt, PhD

Assistant Research Scientist: Rakesh Kaundal, PhD

Instructor: Judy A. Hail, MS

Biosystems and Agricultural Engineering
Daniel L. Thomas, PhD, P.E.—Professor and Head

Regents Professor: Glenn O. Brown, PhD, P.E.,

Professors: Danielle D. Bollner, PhD; Timothy J. Bowser, PhD, P.E.; Nurhan Dunford, PhD, P.E.; Gary A. Fox, PhD, P.E.; Raymond L. Huhnke, PhD, P.E.; Daniel E. Storm, PhD; Randal K. Taylor, PhD, P.E.

Professors Emeriti: Billy J. Barfield, PhD, P.E.; Ronald L. Elliott, PhD, P.E.; Michael D. Smolen, PhD; Marvin L. Stone, PhD, P.E. (Regents)

Adjunct Professors: Jurgen Garbrecht, PhD; Gregory J. Hanson, PhD, P.E.; Randy Raper, PhD

Associate Professors: Hasan Atjehay, PhD, P.E.; Michael Buser, PhD; Robert Scott Frazier, PhD, P.E.; Douglas W. Hamilton, PhD, P.E.; Carol Jones, PhD, P.E.; Yu Mao, PhD; Jason R. Vogel, PhD; Ning Wang, PhD, P.E.; Paul R. Wecker, PhD, P.E.; Mark Wilkins, PhD, P.E.

Adjunct Associate Professors: Joshua B. Payne, PhD; Derek Whiteclock, PhD

Adjunct Professors: Ajay Kumar, PhD; John Long, PhD

Adjunct Assistant Professors: James Hardin, PhD; Sherry L. Hunt, PhD; K.N. Patil, PhD; John Wanjura, PhD

Associate Researcher: J.D. Carlson, PhD

Post-Doctoral Fellow: Kan Liu, PhD; J. Randall Phillips, PhD

Assistant Extension Specialists: Albert J. Sutherland, MS; Saleh Taghavieh, PhD

Entomology and Plant Pathology
Phillip G. Mulder, Jr., PhD—Professor and Head

Director, National Institute for Microbial Forensics and Food & Agricultural Biosecurity (NIMFAFB): Jacqueline Fletcher, PhD

Assistant Director, National Institute for Microbial Forensics and Food & Agricultural Biosecurity (NIMFAFB): Astri C. Wayadande, PhD

Regents Professor: Jacqueline Fletcher, PhD

Endowed Professor Structural and Urban Entomology: Brad K. Kard, PhD

Professors: John F. Damico, PhD; Jack W. Diwiloth, PhD; Jonathan Edelsson, PhD; Kristopher L. Giles, PhD; Robert M. Hunger, PhD; Haibo Jiang, PhD; Tom A. Roney, PhD; Jeanmarie Verchot PhD; Nathan Walker, PhD

Professors Emeriti: Robert W. Barker, PhD; Carol Bender, PhD; Richard C. Berberet, PhD; Jim T. Criswell, PhD; Kenneth Conway, PhD; Alexander B. Filonow, PhD; Larry J. Littlefield, PhD; John R. Sauer, PhD; Russell E. Wright, PhD

Assistant Professors: Charles Abramson, PhD; Benny Bruton, PhD; Norman C. Elliott, PhD; Hassan A. Melsouk, PhD; Richard Nelson, PhD; Gary Puterka, PhD; Hal Reed, PhD; Marilyn Rood, PhD; Steve Rood, PhD

Associate Professors: Carla Garzon, PhD; Stephen Marek, PhD; Francisco Ochoa Corona, PhD; George Opti, PhD; Eric Rebek, PhD; Justin Talley, PhD

Adjunct Associate Professors: J. Scott Armstrong, PhD; Kristen Baum, PhD

Carmen Greenwood, PhD; Kiran Myers, PhD; Kevin Shufran, PhD

Assistant Professors: Jacqueline Lee, PhD; Li Maria Ma, PhD; Bruce Noden, PhD

Adjunct Assistant Professors: Rebecca Bennett, PhD; Deborah Jaworski, PhD; Brian McCorrness, PhD; Thomas Mitchell, PhD; Julio Molineros, PhD; Richard Reiskind, PhD; Kay Sch都想, PhD; Damon Smith, PhD; Carolyn Young, PhD

Assistant Researcher Professionals: Richard A. Grantham, PhD; Ali Zarraabi, PhD

Assistant Research Scientist: Trenna Blagden, PhD

Assistant Extension Specialist: Andrine Shufran, PhD

Assistant Extension Specialist: Jen Olson, MS; Steven Kelly Seuhs, MS

Director, Oklahoma Agricultural Leadership Program and Extension
Associate (Stored Products): Edmond Bonjour, MS

Environmental Sciences
Brian J. Carter, PhD—Professor and Director

Professors: Karen Hickman, PhD (plant ecology); Edwin L. Miller, PhD (forest hydrology); Gary W. Wilson, PhD (restoration ecology)

Associate Professors: Tracy Boyer PhD (natural resource economics); Stephen W. Hallgren, PhD (forest ecology); Tyos E. Ochsner, PhD;
Regents: Lionel M. Raff, PhD; Ziad El Rassi, PhD

Regents Professors: Janet C. Cole, PhD; Michael W. Smith, PhD

Professors: Louis Anella, PhD; Lynn Brandenberg, PhD; Brian A. Kahn, PhD; Niels Maness, PhD; William McGlynn, PhD; Dennis Martin, PhD; Michael A. Schnelle, PhD

Associate Professors: Bruce Dunn, PhD; Michael Holmes, MLA; Justin Moss, PhD

Assistant Professors: Cheryl Mihalko, MLA

Assistant Extension Specialists: David H'lock, MS; Shelley Mitchell, PhD; Kim Toscano, MS

Natural Resource Ecology and Management

M. Keith Owens, PhD—Professor and Head

Regents Professors: Dave Engle, PhD; Samuel D. Fuhlendorf, PhD

Professors: Craig A. Davis, PhD; Karen R. Hickman, PhD; Salim Hiziroglu, PhD; Thomas Kuzmic, PhD; Thomas B. Lynch, PhD; Edwin L. Miller, PhD; Rodney E. Will Jr., PhD; Gail WT. Wilson, PhD

Associate Professors: Kevin P. Allen, PhD; R. Dwayne Elmore, PhD; Stephen W. Halegren, PhD; Timothy J. O’Connell, PhD; Daniel E. Shoup, PhD; Chris Zou, PhD

Assistant Professors: Sue Fairbanks, PhD; Scott Loss, PhD; Duncan Wilson, PhD

Researchers: Mark S. Gregory, MS; John R. Weir, MS

Assistant Extension Specialist: Marley Beem, PhD

Plant and Soil Sciences

David R. Porter, PhD—Professor and Head

Regents Professors: Brett F. Carver, PhD; Donald S. Murray, PhD; William R. Raun, PhD; Haillin Zhang, PhD

Professors: Brian J. Carter, PhD; Shuping Deng, PhD; Jeffrey Edwards, PhD; Arthur R. Klatt, PhD

Associate Professors: Michael F. Anderson, PhD; Brian Arnall, PhD; Tyson E. Ochsner, PhD; Chad Penn, PhD; Million Tadege, PhD; Jason G. Warren, PhD; Yangqi Wu, PhD; Luiling Yan, PhD

Assistant Professors: Sergio M. Abit, Jr, PhD; V. Gopal Kakani, PhD; Angela Post, PhD; Samantha Shoaf, PhD

College of Arts and Sciences

Art, Graphic Design and Art History

Rebecca Birnen, PhD—Vennemeyer Professor of Art and Head

Professors: Sallie McCorkle, MFA; Chris Ramsay, MFA; Mark D. Sisson, MFA; Jack Titus, MFA

Associate Professors: Jennifer Borland, PhD; Phil Choo, MFA; Cristina Cruz Gonzalez, PhD; Angela Fish, MFA; Brandon Reese, MFA; Justen Renyer, MFA; Elizabeth Roth, MFA

Assistant Professors: Irene Bacag, PhD; Patrick Finley, MFA; Psvya Jahanabahi, MFA; Louisa Siddons, PhD; Shaoqian Zhang, PhD

Botany

Linda Watson, PhD—Professor and Head

Regents Professors: Michael W. Palmer, PhD; David W. Meinke, PhD

Professors: William J. Henley, PhD; Gerald Schoenknetch, PhD; Ronald J. Tyril, PhD (emeritus)

Associate Professors: Andrew Doust, PhD; Mark Fashein, PhD; Janette Steets, PhD; Ming Yang, PhD

Clinical Instructor: Chris Wood, MS

Chemistry

Frank D. Blum, PhD—Regents Professor and Chair (Harrison I. Bartlett Chair)

Regents Professors: K. Darrell Berlin, PhD; Warren T. Ford, PhD (emeritus); Lionel M. Raif, PhD; Ziad El Rassi, PhD

Regents Service Professor: Neil Purdie, PhD (emeritus)

Professors: Allen W. Apblett, PhD; Richard A. Bunce, PhD; J. Paul Devlin, PhD (emeritus); John I. Gelder, PhD; Barry Lavine, PhD; Nicholas Materer, PhD; Mark G. Rockley, PhD (emeritus); Sheryl Tucker, PhD; Jeffrey White, PhD

Assistant Professors: Smita Mohanty, PhD; Charles S. Weinert, PhD

Communications Science and Disorders

Cheryl Giddens, PhD—Associate Professor and Head

Assistant Professors: Kate Aulger, PhD; Michael Boyle, PhD; Ramesh Kaipa, PhD; Saba Parvez, PhD; Peter Richtsmeier, PhD

Clinical Assistant Professor: Debbie Earley, AuD

Instructor: Jan Marks, MA

Computer Science

K.M. George, PhD—Professor and Head

Professors: John P. Chandler PhD (emeritus); George E. Hedrick, PhD (emeritus); M.H. Samadzadeh, PhD

Associate Professors: Anthony T. Burrell, PhD; H.K. Dai, PhD; Douglas R. Reiters, PhD; Blayne E. Mayfield, PhD; Nahshon Park, PhD; Johnson Thomas, PhD

Assistant Professors: Eric Chan-Tin, PhD; Christopher Crick, PhD

English

Richard Freer, PhD—Professor and Head

Regents Professors: Edward Jones, PhD; Dennis Preston, PhD

Professors: Linda Austin, PhD; William Decker, PhD; Elizabeth Grubiegel, PhD; Gene Hallock, PhD; Lisa Lewis, PhD; Robert Mayer, PhD; Carol L. Moeller, PhD; Timothy Murphy, PhD (Houston-Trauzz-Wentz Professor); Jeffrey Walker, PhD; Martin Wallen, PhD

Assistant Professors: Ron Brooks, PhD; An Cheng, PhD; Rebecca Damron, PhD; Joshua Daniel-Wariya, PhD; Randi Eldevik, PhD; Tony Graham, MFA; Aimée Parkison, MFA; Lindsey Claire Smith, PhD; Stacy Takacs, PhD

Assistant Professors: Nancy Caplow, PhD; Katherine Halemeleik, PhD; J.C. Hallman, PhD; Lynn Lewis, PhD; Rose McCarney, MFA; Jeff Meinen, PhD; Seth Perlow, PhD; Graig Uhlir, PhD; Andrew Wadoski, PhD

Foreign Languages and Literature

Perry J. Gethner, PhD—Regents Professor, Norris Professor and Head

Professors: John J. Deveny, Jr, PhD; Victor Dmitriev, PhD; Frederique Knottnerus, PhD (emeritus); Karin Schestokat, PhD; John te Velde, PhD; Christopher Weiner, PhD

Associate Professors: Jonathan Ellis, PhD; Paul D. Epstein, PhD; Susana Perea-Fox, PhD; Lucero Tenorio, PhD

Assistant Professors: Isabel Alvarez-Sancho, PhD; Eric Ekman, PhD; Aaron Roggia, PhD

Geography

Dale R. Lightfoot, PhD—Professor and Head

Professors: Jonathan C. Comer, PhD; Carlos E. Cordova, PhD; Alyson L. Greiner, PhD; Reuel R. Hanks, PhD; Stephen J. Stadler, PhD; Thomas A. Wick, PhD

Associate Professors: Brad A. Bays, PhD; G. Allen Finchum, PhD; Rebeca Sheehan, PhD; Jacqueline Vadjanec, PhD; Hongbo Yu, PhD

Assistant Professors: Amy Frazier, PhD; Adam Mathews, PhD

Boone Pickens School of Geology

Estella Atokwana, PhD—Regents Professor, Sun Chair of Hydrogeology and Head

Professors: Mohamed Abdelsalama, PhD (Boone Pickens Endowed Chair in Geophysics); Eliot Atokwana, PhD; G. Michael Grammer, PhD (Chesapeake Energy Corporation Chair of Petroleum Research); Jay M. Gregg, PhD (V. Brown Monnett Chair of Petroleum Geology); Todd Hallahan, PhD; Jack Pashin, PhD (Devon Energy Corporation Chair of Basin Research)

Associate Professors: Darwin Boardman, II, PhD; Joseph Donoghue, PhD; James Pockett, PhD

Assistant Professors: Jeffrey Byrnes, PhD; Frijank Jaiswal, PhD; Daniel Laó Dávila, PhD; Tracy Quan, PhD

History

Laura Belmonte, PhD—Professor and Head

Regents Professor: James L. Huston, PhD

Professors: Joseph P. Byrnes, PhD (emeritus); James F. Cooper, Jr, PhD; Jason E. Lavery, PhD; Michael L. Logan, PhD; Ron McCoy, PhD; L. George Moses, PhD; Richard C. Rohrs, PhD; Michael M. Smith, PhD; Elizabeth A. Williams, PhD

Associate Professors: William S. Bryan, PhD; David M. D’Andrea, PhD; Brian W. Frehney, PhD; Ronald A. Petrin, PhD; Lesley A. Rimmel, PhD; Tonia Sharlach, PhD

2014-2015 University Catalog
**Assistant Professors:** Laura J. Arata, PhD; Thomas A. Carlson, PhD; Charles L. Hughes, PhD; Yongtai Du, PhD; John M. Kinder, PhD; Andrew J. Rosa, PhD

**Mathematics**

William H. Jasso, PhD—Regent's Professor; Grayce B. Kerr Chair and Head

**Regents Professor:** Alan Adolphson, PhD (emeritus); Jiabong Wu, PhD (AT&T Professor)

**Professors:** Douglas B. Aichele, EdD (emeritus); Dale E. Alspach, PhD; Leticia Barchini, PhD; Dennis Bertholf, PhD (emeritus); Birne Bingar, PhD; Herman Burchard, PhD (emeritus); James R. Choskie, PhD (Noble Professor); Bruce C. Crader, PhD; Penny Evans, PhD (emeritus); Amit Ghosh, PhD; John Jibe, PhD (emeritus); Anthony Kable, PhD (Vaughn Professor); Marvin S. Keener, PhD (emeritus); Wei-Jiang Li, PhD; Lisa A. Mantini, PhD; J. Robert Myers, PhD; Alan Noel, PhD; Igor Pritsker, PhD; David J. Ullrich, PhD; John Wolfe, PhD (emeritus); David J. Wright, PhD; Roger Zierau, PhD

**Associate Professors:** Mahdi Asgari, PhD; Christopher Francisco, PhD; Jesse Johnson, PhD; Ning Li, PhD; Jia Eun Ku, PhD; Michael Oehrtman, PhD; Yanqiu Wang, PhD

**Assistant Professors:** Paul Eili, PhD; Benjamin Harris, PhD; Jifi Lebl, PhD; Jeffrey Mermin, PhD; Edward Richmond, PhD; Walter Rusin, PhD; Jay Schweig, PhD; Henry Segerman, PhD

**Clinical Instructor:** Lee Ann Brown, MS; Melissa Mills, PhD; Danielle O'Donnel, PhD; Elena Pavelescu, PhD; Donna Rae Tree, MS

**School of Media and Strategic Communications**

Derina Holtzhausen, PhD—Professor and Director

**Professor:** Jami Fullerton, PhD (Welch Chair)

**Associate Professors:** Jack Hodgkinson, MA; Stan Ketterer, PhD; Edward Kian, PhD; Bobbi Kay Lewis, PhD; John McGuire, PhD; Lori McKinnon, PhD; Ray Murray, MS; Joey Saret, PhD

**Assistant Professors:** Jared Johnson, PhD; Kenneth Kim, PhD; Kathleen McElroy, MA; Cynthia Nichols, PhD; Daniel Shpika, PhD

**Clinical Assistant Professor:** Gina Noble, MS

**Microbiology and Molecular Genetics**

D. Kim Burnham, PhD—Associate Professor and Interim Head

**Regents Professor:** Robert V. Miller, PhD (emeritus)

**Professors:** Robert L. Burnap, PhD (Vannevar Chair in Bioinformatics); Jeffrey A. Hadwiger, PhD; Wouter D. Hof, PhD; Rolf A. Prade, PhD; Moses N. Vijaykumar, PhD

**Associate Professors:** Mostafa S. Elshahed, PhD; Babu Z. Esthepure, PhD; Gilbert H. John, PhD; Marianna A. Patrauchan, PhD; Edward I. Shaw, PhD

**Assistant Professors:** Erika Lutter, PhD; Noha Youssaf, PhD

**Research Assistant Professor:** Masato Kumauchi, PhD

**Departments of Military Studies**

Bret S. Danilowicz, PhD—Coordinator

**Aerospace Studies**

Lt Col Steven R. Cherrington—Professor and Head

**Assistant Professors:** CPT Michael D. Moffitt; CPT Micah T. Heard; CPT Alexandria G. Randall

**Military Science**

LT Col Kent N. T. Nicholas—Professor and Head

**Assistant Professors:** CPT John W. Beatty; Michael W. Dale; MSG William S. Fleck; SFC Isaac G. Grunewald; MAJ Mark E. Mahoney

**Music**

Brant Adams, PhD—Professor and Head

**Professors:** Thomas Laners, DMA; Joseph P. Massai, DMA; D. Allen Scott, PhD

**Professors:** Babette Belter, MM; Wayne Bovenschen, MM; Paul R. Compton, MM; Anne-Marie Condace, DMA; April Golliver, MM; Julia Haley, PhD; Celeste N. Johnson-Freher, MM; Igor Karaca, DMA; Lanette Ipez-Compton, MM; George Speed, MM; Z. Randall Stroope, DMA; Lauren A. Talbott, DMA

**Assistant Professors:** Meredith J. Biele-Wells, DMA; Virginia Lea Broffitt-Kunzer, DMA; Eric A. Garcia, DMA; Ryan B. Gardner, DMA; Christopher Haggard, DMA; Douglas S. Henderson, DMA; Jeffrey J. Loeffert, DMA; Mark E. Perry, PhD; Steve P. Sanders, MM

**Philosophy**

Scott D. Geffand, PhD—Associate Professor and Head

**Professor:** Eric H. Reitan, PhD

**Associate Professors:** Rebecca A. Bensen Cain, PhD; James W. Cain, PhD; Marty H. Heiz, PhD; Lawrence R. Pastermack, PhD; Doren A. Recker, PhD

**Assistant Professors:** Just in M. Horn, PhD; Apple Z. Ikrog, PhD; Shannon L. Spaulding, PhD

**Physics**

John W. Mintmire, PhD—Regents Professor and Head

**Regents Professors:** Girish Agrawal, PhD (Noble Chair); Kaladi Babu, PhD; Stephen M.S. McKeever, PhD; Satya Nandi, PhD; Peter M.A. Sherwood, PhD, ScD (emeritus)

**Professors:** Bruce Ackerson, PhD; Donna K. Rand, PhD; George S. Dixon, PhD (emeritus); H. James Harmon, PhD (emeritus); James N. Lange, PhD (emeritus); Joel J. Martin, PhD (emeritus); Jacques H. L. Perk, PhD; Al Rosenberger, PhD; Paul A. Westhaus, PhD (emeritus); James P. Wicksted, PhD; Timothy M. Wilson, PhD (emeritus); Ahelia Xie, PhD

**Associate Professors:** Eric Benton, PhD; Robert Hauenstein, PhD (emeritus); Alexander Khanov, PhD; Flera Rizatdinova, PhD; Peter O. Shull, PhD; Gil S. Summy, PhD; Eduardo Yukihara, PhD; Donghua Zhou, PhD

**Assistant Professors:** Mario Borunda, PhD; Joseph Hale, PhD; Yingmei Liu, PhD

**Political Science**

Jeanette Mendez, PhD—Professor and Head

**Regents Professors:** Robert Darcy, PhD (emeritus)

**Professors:** Robert E. England, PhD; Rebekah Herrick, PhD; James J. Lawler, PhD, JD (emeritus); Dave Neal, PhD

**Associate Professors:** Robert L. Spurrier, Jr., PhD; Theodore Vestal, PhD (emeritus)

**Associate Professors:** Danny M. Adkisson, EdD; Anthony E. Brown, PhD; James A. Davis, PhD; William J. Ficht, PhD; Joel M. Jenawold, PhD; Jason Kirksey, PhD; Jason Maloy, PhD; William Parle, PhD (emeritus); Mark Wolfram, PhD

**Assistant Professors:** Nikolas Emmanuel, PhD; Susan Müller, PhD; Timothy Peterson, PhD; Eve Ringsmuth, PhD; Peter Rudloff, PhD; Erica Townsend-Bell, PhD

**Psychology**

Thad Leffingwell, PhD—Professor and Head

**Regents Professors:** Charles I. Abramson, PhD; John M. Chaney, PhD

**Professors:** James W. Grice, PhD; Douglas Hershey, PhD; James Hughy, PhD (emeritus); Larry L. Mullins, PhD; Melanie Page, PhD; David G. Thomas, PhD

**Associate Professors:** Edward Burkey PhD; Melissa Burkey PhD; Sheila Kennison, PhD; Mary Mandeville, EdD (emeritus); Celinda Reese-Melancon, PhD; David Schrader, PhD; Bill C. Scott, PhD (emeritus); Maureen Sullivan, PhD; La Ricka Wingate, PhD

**Assistant Professors:** R. Matt Alderson, PhD; Lana Beasley, PhD; Jennifer Byrd Craven, PhD; Christopher Cushing, PhD; DeMond Grant, PhD; Stephanie N. Sweatt, PhD

**Religious Studies**

Bruce C. Crader, PhD—Director

**Adjunct Associate Professor:** Michael D. Thompson, PhD (Phoebe Schertz Young Chair)

**Sociology**

Duane Gil, PhD—Professor and Head

**Regents Professors:** Rikely Dunlap, PhD; David Knottnerus, PhD (emeritus)

**Professors:** Patricia Bell, PhD (emeritus); Kenneth Kiser, PhD; Thomas Shrives, PhD; Jean Van DeLinder, PhD

**Associate Professors:** Beth S. Caniglia, PhD; John Cross, PhD (emeritus); Andrew Fullerton, PhD; Bin Liang, PhD; Tammy Mix, PhD; Stephen Perkins, PhD

**Assistant Professors:** Kelly Hartshorn, PhD; Heather McLaughlin, PhD; Monica Whitham, PhD

**Statistics**

Mark E. Payton, PhD—Regents Service Professor and Head

**Regents Professor:** Ibrahim Ahmad, PhD

**Professors:** Larry Claypool, PhD (emeritus); J. Leroy Folks, PhD (emeritus); Melinda H. McCann, PhD

**Associate Professors:** Carla L. Goad, PhD; Brenda J. Masten, PhD; Lan Zhu, PhD

**Assistant Professors:** Joshua Habiger, PhD; Ye Liang, PhD

---

**2014-2015 University Catalog**
Theatre
Andrew Kimbrough, PhD—Professor and Head

Professors: Judith Conk, MFA; Heidi Hoffer, MFA; Peter Westerhoff, MFA
Associate Professor: Lloyd Caldwell, MFA
Assistant Professors: Maria Beach, PhD; Lee Brassuell, MFA; Jodi Jnks, MFA
Clinical Instructors: Chad Rodgers, MFA; Rana J. Webber, MFA

Zoology
Loren Smith, PhD—Regents Professor and Head

Regents Professors: Anthony Echelle, PhD (emeritus); Stanley Fox, PhD (emeritus); Ron Van Den Bosch, PhD
Professors: Brett S. Danilowicz, PhD; Margaret Ewing, PhD (emeritus); Donald French, PhD; Karen McBee, PhD; Scott McMurtry, PhD; Dale Toetz, PhD (emeritus)
Associate Professors: Kristen Baum, PhD; Jason Belden, PhD; Andrew Dzialowski, PhD; Jennifer Grindstaff, PhD; Meredith Hamilton, PhD; Matthew Lovern, PhD
Assistant Professors: Matthew Bolek, PhD; Polly Campbell, PhD; Sarah DuRant, PhD; Punita Jayasingh, PhD; Barney Luttbeg, PhD; Monica Papes, PhD; Jennifer Shaw, PhD; Mary Towner, PhD

College of Education
School of Applied Health and Educational Psychology
Steve Harrist, PhD—Professor and Interim Head

Regents Professor: Lowell Caneday, PhD
Professors: Alfred Carlozzi, EdD; Gary Duhan, PhD; Steve Harrist, PhD; Bert Jacobson, EdD; Sue C. Jacobs, PhD; Terry Stinnett, PhD; Carrie Winterrowd, PhD
Associate Professors: Donald Boswell, PhD; Barbara Carlozzi, PhD; Youn-Jung Cho, PhD; Hugh Cethar, PhD; Robert Christenson, EdD; Patricia Hughes, PhD; Donna Linden meier, PhD; Bridget Miller, PhD; Matthew S. O'Brien, PhD; Valerie McCaha, PhD; Tim Pasmore, EdD; Brian Pency, PhD; Douglas Smith, PhD; Arik Warren, EdD; Georgette Yetter, PhD
Assistant Professors: Timothy Baghurst, PhD; Julie Coff, PhD; Jason DeFreitas, PhD; Tonya Hammer, PhD; Julie Koch, PhD; Benjamin Solomon, PhD; Chandra Story, PhD; Tyler Tapps, PhD; Jane Vogler-Crugan, PhD; Jennifer Volberding, PhD

School of Educational Studies
Jesse Mendez, PhD—Associate Professor and Head

Regents Professor: Dale Fuqua, PhD
Professors: Timm Bliss, EdD; Edward Harris, PhD; Steven Marks, EdD
Associate Professors: Lucy Bailey, PhD; Laura Barnes, PhD; Denise Bham, PhD; John D. Fouhet, PhD; Fred Hanson, PhD; Kerri Kearney, EdD; Bernita Krumon, PhD; Kayte Perry, PhD; Susan Santsberry, EdD; Steven Wanger, PhD; Guoping Zhao, PhD
Assistant Professors: Katherine Curry, EdD; Chad Depperschmidt, EdD; Jon Lofts, EdD; Jam Khojast, PhD; Angel Kymes, PhD; Tami Moore, PhD; Mwarumba Mwaivita, PhD; Penny Thompson, PhD
Manager, Aviation: Lance Fortney, MS
Chief Flight Instructor: Mark Uhlan, EdD

School of Teaching and Curriculum Leadership
Pamela Brown, EdD—Professor and Head

Professors: Lynna Ausburn, PhD; Pamela Carroll, PhD; Kathryn Castle, EdD; Pamela Fry, PhD; Christine Ormsbee, PhD; Hongyu Wang, PhD; Virginia Worley, PhD
Associate Professors: Belinda Cole, EdD; C. Robert Davis, PhD; Pat Lamphere-Jordan, EdD; M. Sue Christian Parsons, PhD; Jennifer Sanders, PhD; Elvira Santullova-Allison, PhD; Mary Jo Seif, EdD; Hongyu Wang, PhD; Juliana Utley, PhD; Qiuying Wang, PhD
Assistant Professors: Julie Angle, PhD; Kimberly Davis, PhD; Toni Ivey, PhD; Jennifer Job, PhD; Faryl Kander, PhD; Seungho Moon, EdD; Shamedra Nowell, PhD; Adrienne Redmond-Sanogo, PhD; Di Ryter, PhD; Sheri Vasinda, PhD

College of Engineering, Architecture and Technology

Biosystems and Agricultural Engineering
Daniel L. Thomas, PhD, PE—Professor and Head

Regents Professors: Glenn O. Brown, PhD, PE
Professors: Danielle D. Belmler, PhD; Timothy J. Bowser, PhD, PE; Nurhan Dunford, PhD, PE; Garey A. Fox, PhD, PE; Raymond L. Huhnke, PhD, PE; Daniel E. Storm, PhD; Randall K. Taylor, PhD, PE

Professors Emeriti: Billy J. Barfield, PhD, PE; Ronald L. Elliott, PhD, PE; Michael D. Smolen, PhD; Marvin L. Stone, PhD, PE (Emeriti)
Adjunct Professors: Torger Garbrecht, PhD; Gregory J. Hanson, PhD, PE; Randy Raper, PhD
Associate Professors: Hasan Atiyeh, PhD, PE; Michael Buser, PhD; Robert Scott Frazier, PhD, PE; Douglas W. Hamilton, PhD, PE; Carol Jones, PhD, PE; Yu Mao, PhD; Jason R. Vogel, PhD; Ning Wang, PhD, PE; Paul R. Weckler, PhD, PE; Mark Wilkins, PhD, PE
Adjunct Associate Professor: Joshua B. Payne, PhD; Derek Whitekloch, PhD
Assistant Professors: Ajay Kumar, PhD; John Long, PhD
Adjunct Assistant Professors: James Hardin, PhD; Sherry W. Hunt, PhD; K.N. Patil, PhD; John Wanjuro, PhD
Associate Researcher: J.D. Carlson, PhD
Post-Doctoral Fellow: Kan Liu, PhD; J. Randall Phillips, PhD
Assistant Extension Specialists: Albert J. Sutherland, MS; Saleh Taghaievian, PhD

Chemical Engineering
James R. Whiteley, PhD—Hendrix Chair Professor and Head

Regents Professor and Amoco Chair Emeritus: Robert L. Robinson, Jr., PhD, PE
Regents Professor and Kerr–McGee Chair Emeritus: Kenneth J. Bell, PhD, PE
Regents Professor and Bartlett Chair Emeritus: Khaled A. Masem, PhD
Professor and Anadarko Petroleum Corp. Chair: Gary L. Foutch, PhD, PE
Professor Emeritus: A. H. Johannes, PhD, PE, Ian Wagner, PhD, PE
Professor, Samson Chair and Ward Chair: Peter E. Clark, PhD
Professor and Amoco Chair: Russell Binhart, PhD
Professor and Continental Resources Chair: Geir Hareland, PhD
Professors: Karen High, PhD; D. Alan Tree, PhD
R.N. Maddox Associate Professor: James E. Smay, PhD
Edward Jullian Chair in Engineering: Sunday V. Madhaly, PhD

Associate Professors: Heather D.N. Fahlenkamp, PhD; Martin S. High, PhD, PE; Sunday V. Madhaly, PhD; Joshua D. Ramsey, PhD; James E. Smay, PhD
Assistant Professors: Clint P. Aichele, PhD; Prem L. Bikikina, PhD; Jindal K. Shah, PhD; Ashlee Ford Verspyt, PhD

Civil and Environmental Engineering
John N. Veenstra, PhD, PE—Professor and Head

Professors: S.A. Ahmed, PhD, PE; Stephen A. Cross, PhD, PE; William F. McTernan, PhD, PE; Paul J. Tikalsky, PhD, PE; Chen-Ping (Kelvin) Wang, PhD
Associate Professors: Rifat Bulut, PhD; Robert Emerson, PhD, PE; Tyler Ley, PhD, PE; Bruce Russell, PhD, PE; Dee Ann Sanders, PhD, PE; Avdhesh K. Tyagi, PhD, PE; Gregory G. Wilber, PhD, PE
Assistant Professors: Garry Gregory, PhD; Enos Stover, PhD, PE

Electrical and Computer Engineering
James C. West, PhD—Professor and Interim Head

Regents Professor, PSU/Albrecht Naeter Professor and Director, Engineering Energy Laboratory: Rama Ramakumar, PhD, PE
Regents Professor and Henry & Shirley Bellmon Chair in Optoelectronics: Daniel R. Grischkowsky, PhD

Regents Professors: Subhash Kak, PhD; Gary Yen, PhD
Professor and Associate Dean for Research: Charles F. Bunting, PhD

Professor: H. Jack Allison, PhD, PE (emeritus); Charles M. Bacon, PhD (emeritus); James E. Baker, PhD (emeritus); Charles F. Bunting, Ph.D. (emeritus); Richard L. Cummings, PhD (emeritus); Guokang Fan, Cal and Marilyn Vogt Professor; Professor: Martin T. Hagan, PhD, PE; Jerry S. Krasinski, PhD; Ronald P. Rhoto, PhD, PhD (emeritus); Keith A. Teague, PhD, PE; Rao Yarlagadda, PhD (emeritus); Weili Zhang, PhD

Associate Professors: Stephen Bell, PhD; Damon Chandler, PhD; Qi Cheng, PhD; Chiswell G. Hutchens, PhD, PE; Louis G. Johnson, PhD; Carl D. Latino, PhD; Daqing Piao, PhD; George Scheets, PhD; Wenhua Sheng, PhD; James Sline, PhD
Assistant Professors: Nishanthan Eelnigoda, PhD; Yuanxiong Guo, PhD; Russell Rhinehart, PhD
Adjunct Professors: Christie Raper, PhD; Rono Saha, PhD; Ramona Vashaee, PhD
Visiting Assistant Professor: Vignesh Rajamani, PhD
Adjunct Professor: John M. Acken, PhD
Adjunct Associate Professors: Reza Abdolvand, PhD; John O’Hara, PhD; Nazanin Rahnavard, PhD

General Engineering
Raman P. Singh, PhD—Professor, C.F. Colcord Chair and Associate Dean for Academic Affairs

Professor: Stephen S. Bell, PhD, PE
Adjunct Assistant Professors: John Best, BS; Deborah Herrmann, MBA; Rudy Herrmann, MBA; Donald W. Pitts, BS; Angela Shick, MS; Ethan; Greg Watson, MS

Industrial Engineering and Management
Sundaresh S. Heragu, PhD—Professor and Chair

Assistant Professor: N. Suraj, MS

Materials Science and Engineering
Raj N. Singh, ScD—William Company Distinguished Chair Professor and Head

Professor and Varnado Endowed Professor: Ranji Vaidyanathan, PhD, PE

Associate Professor: Pankaj Sarin, PhD

Associate Professor: Lobhat Tayebi, PhD

Mechanical and Aerospace Engineering
Daniel E. Fisher, PhD, P.E.—Albert H. Nelson, Jr. Endowed Chair in Engineering Professor and Head

Regents Service Professor and Director, Web Handling: Karl N. Ried, ScD

Regents Professor and Harrington Endowed Chair in Advanced Materials:
- Don A. Lucca, PhD, Drhc, CMGE

Regents Professor, Branner Endowed Professorship: Afshin J. Ghajar, PhD, PE

Regents Professor and CM. Leonard Professorship in Engineering:
- J.D. Spittel, PhD, PE

Professor and Noble Foundation Chair: James K. Good, PhD, PE

Professor and TJ. Cunningham Endowed Chair: Andrew S. Arena, Jr, PhD

Professor and Centennial Professorship in Engineering: Prabhakar R. Pagilla, PhD

Professor and Ray & Linda Booker Endowed Professor: Jamey B. Jacob, PhD

Professors:
- Lawrence L. Hoerbock, PhD, PE (emeritus)
- David G. Ullig, PhD, DSc, PE
- Gary E. Young, PhD, PE

Associate Professors:
- Frank W. Chambers, PhD, PE; Lorenzo Cremaschi, PhD
- Jay C. Hanan, PhD; James A. Kidd, PhD (clinical); Ali Kaan Kalk
- Girish Chowdhary, PhD; Brian R. Elbing, PhD; Jennifer Jones, PhD; Isaac Washburn, PhD

Assistant Professors:
- Ghassem Rezaei, PhD (clinical); Arvind Santhanakrishnan, PhD (clinical)

Assistant Professor: Partha M. Dharmaratne, PhD

School of Architecture
Randy Seisengert, MArch, AIA—Professor and Head

Professors:
- Mohammed Bilbeisi, MArch, RA; Suzanne D. Bilbeisi, MArch, RA; Niguel Jones, MArch, RBIA, RA; Steve E. O’Hara, MArchEng, PE; Khaled Mann, MArch, RA

Associate Professors:
- Jeffrey K. Williams, MArch, RA; John Womack, MArch, RA

Assistant Professors:
- Jeannie Homec, MArch, AIA; John Phillips, MArchEng, PE; Michael Rahbones, PhD; Paulo Sanza, MArch, RA

Assistant Professor: Seung Ra, MArch; Carisa Ramming, MArchEng, PE

Nathan Richardson, MArch, RA; Awilda C. Rodriguez, MArch; Jerry L. Stivers, MArch, AIA

Division of Engineering Technology
Dana E. Hobson, PhD, P.E.—Construction Management Advisory Board Chair; Professor and Interim Head

Construction Management Technology
Heather Yates, EdD, AC—Associate Professor and Program Director

Professor: Dana Hobson, PhD, PE

CMAB Chair: Mark H. Pruitt, MS, MArch, RA

Assistant Professor: Lantz Holtzwoer, PhD; Rachel Mosie, PhD

Adjunct Professor: Robert Krewitt, MWS

Electrical Engineering Technology
Imad Abouzahr, PhD, P.E.—Associate Professor and Interim Head

Associate Professor: Brian Norton, MS, PE

Assistant Professor: Antone Kusmanoff, PhD; Ellis C. Nuckolls, MS, PE

Sr. Research Engineer: William Holloway, BS, CET

Fire Protection and Safety Technology
Qingsheng Wang, PhD, P.E.—Assistant Professor and Acting Program Director

Assistant Professors:
- Robert Agnew, CHF; Virginia Charles, PE; Bryan Hoskins, PhD

Visiting Assistant Professors:
- Tingguang Ma, PhD; John Stevens, PhD, CIH

Mechanical Engineering Technology
Richard A. Beier, PhD, PE.—Professor and Program Director

Associate Professors:
- Kenneth Belanus, MSEM; Young Bae Chang, PhD, PE

Professor and John and Sue Taylor Professor: Brenda Smith, PhD

Professor: Janice Herrmann, PhD, RD/LD

Assistant Professors:
- Apita Basu, PhD, RD; Barbara Brown, PhD, RD/LD; Stephen Clarke, PhD, RD; Doana Hildebrand, PhD, RD/LD; Tay Kennedy, PhD, RD/LD; Edralin Lucas, PhD

College of Human Sciences

Design, Housing and Merchandising
Kathleen Robeinstein, PhD—Professor and Head

Associate Professor and Christine Salmon Professor: Mihyun Kang, PhD

Professors:
- Jorge Atiles, PhD; Paulette Hebert, PhD; Shireetta Owenby, PhD

Associate Professor: Serafim Pelkoz, PhD; Adriana Petrova, PhD

Assistant Professors:
- Cosette Armstrong, PhD; Tzilanka Chandrasekera, MS; Greg Clare, PhD; Aditya Jayadas, PhD; Gina Peek, PhD; Mary Ruppert-Stroescu, PhD

Clinical Assistant Professor: T. Chris Smith, MFA

Clinical Instructor: Diane Limbaugh, MS

Hotel and Restaurant Administration
Ben Goh, EdD—Charles W. Langphere Professor; Associate Dean and Director

Regents Professor and William E. Davis Chair: Hallin Qu, PhD

Professors:
- Murat Hancer, PhD; Bill Ryan, EdD, RD/LD

Assistant Professor: Jarrod Leong, PhD; Lisa Sleivitch, PhD

Assistant Professors:
- Yeasun Chung, PhD; Catherine Curtis, PhD; Jing Yang, PhD

Clinical Assistant Professor: Steven Ruby, JD

Clinical Instructors:
- Paul Brennan, MS; David Davis, MS; Philippe Garney, MS; Heidi Hoar, MS

Human Development and Family Science
Jennifer Hays-Gruda, PhD—Professor and Head

Assistant Department Head: Jarrod Norgase, MS

Regents Professor and Dean: Stephanie Wilson, PhD

Regents Professor: Laura Hubbs-Tait, PhD

Professor and Endowed Professor in Parenting: Robert Larzerelle, PhD

Professor, George Kaiser Family Foundation Endowed Chair in Family Resilience and Center for Family Resilience Director: Joseph Graywacz, PhD

Professor and Masonic Chair: Camby S. Henry, PhD

Professors:
- Amanda W. Harrell, PhD; Amanda Morris, PhD

Associate Professors and Graduate Coordinators: Brandt Gardner, PhD; Michael Merritt, PhD

Associate Professor and Bryan Close Professor in Adulthood and Aging: Whitney Bailey, PhD

Associate Professor and Gerontology Program Coordinator: Alex Bishop, PhD

Associate Professor and MFT Program Coordinator: Glade Topham, PhD

Associate Professor and Center for Family Services Director: Matt Brunson, PhD

Associate Professors:
- Julia Atiles, PhD; Ron Cox, PhD; Michael Criss, PhD

Assistant Professors:
- Kamal Gullas, PhD; Tammy Henderson, PhD; Charles Hendrix, PhD; Christine Johnson, PhD; Jan Johnston, PhD; Sissy Osteen, PhD; Karina Shreffler, PhD

Assistant Professors:
- Jennifer Jones, PhD; Isaac Washburn, PhD

Clinical Assistant Professor: Ginger Welch, PhD; Paula Tripp, PhD

Clinical Assistant Professor and ECE Program Coordinator: Amy Tate, PhD

Clinical Instructors:
- Mayra Almodovar, EdD; Gretchen Cole-Lade, MS

Cleo L. Craig Child Development Laboratory RISE Director: Dianna Ross, MS

Nutritional Sciences
Nancy M. Betts, PhD, RD—Regents Professor, Jim and Lynne Williams Endowed Professor and Head

Regents Service Professor and Associate Department Head: Gail Gates, PhD, RD

Professor and Marilyn Thoma Chair: Barbara J. Stoecker, PhD, RD/LD

Professor and John and Sue Taylor Professor: Brenda Smith, PhD

Professor: Janice Herrmann, PhD, RD/LD

Assistant Professors:
- Apita Basu, PhD, RD; Barbara Brown, PhD, RD/LD; Stephen Clarke, PhD, RD; Doana Hildebrand, PhD, RD/LD; Ray Kennedy, PhD, RD/LD; Edralin Lucas, PhD
Research Associate Professor: Stephanie Parker, PhD
Assistant Professors: Dingbo (Daniel) Lin, PhD; Winyoo Chownanadisai, PhD
Visiting Assistant Professor: Seungun Jung, PhD
Clinical Professor: Lu Ann Soliah, PhD, RD
Clinical Assistant Professor and Multicultural and Community Engagement Specialist: M. Lupita Fabregas, PhD
Clinical Instructor and Director of Dietetic Internship: Julie Huber, MS, RD/ID
Director of Didactic Program in Dietetics and Assistant Director of Dietetic Internship: Carol Beier, MS, RD/ID
Instructors: Embrey Follett, MS, RD; Michael Rhone, MS, RD
CNEP Coordinator: Debra Garrard Foster, MS

Spears School of Business
Economics and Legal Studies in Business
Lee C. Adkins, PhD—Professor and Head
Regents Professor: Dan S. Rickman, PhD
Professors: Orley M. Amos, Jr, PhD; Kevin Currier, PhD; Jim Fain, PhD; Jaebom Kim, PhD; Keith Willett, PhD
Associate Professors: Mary N. Gade, PhD; Harounan Kazianga, PhD; Laurie A. Lucas, JD
Assistant Professors: Mehtabul Azam, PhD; Gregory Day, JD; Bidisha Lahiri, PhD; Karen Maguire, PhD; Geoffrey P.G. Pivateau, JD; Wenyi Shen, PhD; John Winters, PhD; Jack Woolsen, JD
Clinical Faculty: Michael D. Morris, PhD
Other Faculty: Bill McLean, PhD

Finance
John A. Polonchek, PhD—Professor and Head
Professors: David A. Carter, PhD; Joel Harper, PhD; Timothy L. Krehbiel, PhD; Ramesh P. Rao, PhD; Betty J. Simkins, PhD; Gary Trenepohl, PhD
Associate Professors: William H. Dare, PhD; Ronald K. Miller, PhD; Ali Nejadmalayeri, PhD
Assistant Professors: Alexander Boquist, PhD; Shu Yan, PhD; Jun Zhang, PhD
Clinical Faculty: Tom Johansen, PhD

Management
James M. Pappas, PhD—Associate Professor and Head
Professors: Dennis L. Mott, EdD; Debra L. Nelson, PhD; Thomas H. Stone, PhD; Margaret White, PhD
Associate Professors: Federico Aime, PhD; Raj Basu, PhD; W. Matthew Bowler, PhD; Bryan Edwards, PhD; Rebecca Greembaum, PhD; Scott Johnson, PhD; Chalmor E. Labig, Jr., PhD; Andrew L. Urich, JD; J. Craig Wallace, PhD; Cynthia Wang, PhD
Assistant Professors: Timothy A. Hart, PhD; Aaron Hill, PhD; Alexis Smith, PhD
Other Faculty: Evan Davis, PhD; Bryan Finch, PhD; Ryan Greembaum; Marla Mahar; Kristina Schaap

Management Science and Information Systems
Rick L. Wilson, PhD—Professor and Head
Regents Professor: Ramesh Sharda, PhD
Professors: Ali Amiri, PhD; Nik Dalal, PhD; Dursen Delen, PhD; David C. Ho, PhD; Tim C. Ireland, PhD; Jeretta H. Nord, EdD; Rithindra Sarathy, PhD; Mark Weise, PhD
Associate Professors: David P. Brooks, PhD; Jin Kyu Lee, PhD
Assistant Professors: Bryan I. Hammer, PhD; Andy Lase, PhD; Jason Nichols, PhD; Zachary R. Steelman, PhD
Clinical Faculty: James Burkman, PhD

Marketing
Joshua L. Wiener, PhD—Professor and Head
Professors: Tom Brown, PhD; Goutam Chakraborty, PhD; L Lee Manzer, PhD; Kevin Voss, PhD
Associate Professors: Todd Arnold, PhD; Xiang Fang, PhD; Karen Ralberti-Pappas, PhD; Marilyn Mason, PhD; Ajay Sukhdial, PhD; Tracy Suter, PhD
Assistant Professors: Zachary Arens, PhD; Ji Ho Park, PhD; Ted Matherly, PhD
Clinical Faculty: Aditi Grover, PhD; James Mason, PhD
Other Faculty: Stephen A. Hampton, PhD; Don Mitchell; Jerry Rachley

School of Accounting
Robert Cornell, PhD, CMA—Associate Professor and Head
Professor: Charlotte J. Wright, PhD, CPA
Associate Professors: Don Herrmann, PhD; Carol B. Johnson, PhD, CFE; Sandeep Nahar, PhD; William C. Schwartz, PhD, CPA
Assistant Professors: Bradley Blaylock, PhD; Dan Eshleman, PhD; Brad Lawson, PhD, CPA; Leah Muriel, PhD, CPA; Paula Sanders, PhD, CPA; Scott White, PhD
Clinical Faculty: Lance Fisher, PhD, CPA; Lela Pumphrey, PhD, CPA; Angela Spencer, PhD, CPA; Monika Turek, MS, JD; Alyssa Vowell, MBA, CPA

School of Entrepreneurship
Bruce Barringer, PhD—Professor and Head
Regent Professor: Robert A. Baron, PhD
Professor: Vance Fried, JD
Assistant Professor: Brandon Mueller, PhD
Clinical Faculty: Craig Watters, PhD; Richard Gajan, MBA
Other Faculty: Kyle Eastham, MSE; David Fuqua, MBA; Stephen Griggs, PhD; Elizabeth Payne, JD; Tom Westbrook, PhD

Center for Health Sciences
Provost of the Center for Health Sciences and Dean of the College of Osteopathic Medicine
Kaye M. Shrum, DO

Biomedical Sciences and Graduate Studies
Bruce Benjamin, PhD—Interim Vice Provost for Graduate Studies, Associate Dean for Biomedical Sciences

Anatomy and Cell Biology
Kenneth E. Miller, PhD—Professor and Chair
Professors: William D. Mee, PhD; Kenneth E. Miller, PhD
Associate Professors: Doris K. Pattnuo, PhD; Kent S. Smith, PhD; Anne Weil, PhD; Nedra Wilson, PhD
Assistant Professors: Holly Ballard, PhD; Paul Gignac, PhD

Behavioral Sciences
Vivian M. Stevens, PhD—Professor and Chair
Professors: Richard H. Bost, PhD; Michael H. Piña, PhD; Sue K. Redwood, PhD; Nancy Van Winkle, PhD
Associate Professor: Richard A. Wansley, PhD

Biochemistry and Microbiology
Charles G. Sanny, PhD—Professor and Chair
Professors: Martin W. Banschbach, PhD
Associate Professors: Earl L. Blewett, PhD; Franklin R. Champlin, PhD; Rashmi Naul, PhD; Gervald Köhler, PhD

Clinical Education
Joan E. Stewart, DO, MPH—Professor and Associate Dean

Family Medicine
Christopher Thurman, DO—Professor and Chair
Regina Lewis, DO—Associate Professor and Medical Director
William J. Pettit, DO—Professor, Interim Senior Associate Dean and Associate Dean for Rural Health
Professors: Jenny J. Alexopoulos, DO; Joan Stewart, DO; William Stephen Eddy, DO, MPH
Associate Professor: Lora D. Cotton, DO

Clinical Education
Sarah Cornell, DO, MPH—Assistant Professor and Chair

School of Accounting
Robert Cornell, PhD, CMA—Associate Professor and Head
Professor: Charlotte J. Wright, PhD, CPA
Associate Professors: Don Herrmann, PhD; Carol B. Johnson, PhD, CFE; Sandeep Nahar, PhD; William C. Schwartz, PhD, CPA
Assistant Professors: Bradley Blaylock, PhD; Dan Eshleman, PhD; Brad Lawson, PhD, CPA; Leah Muriel, PhD, CPA; Paula Sanders, PhD, CPA; Scott White, PhD
Clinical Faculty: Lance Fisher, PhD, CPA; Lela Pumphrey, PhD, CPA; Angela Spencer, PhD, CPA; Monika Turek, MS, JD; Alyssa Vowell, MBA, CPA

School of Entrepreneurship
Bruce Barringer, PhD—Professor and Head
Regent Professor: Robert A. Baron, PhD
Professor: Vance Fried, JD
Assistant Professor: Brandon Mueller, PhD
Clinical Faculty: Craig Watters, PhD; Richard Gajan, MBA
Other Faculty: Kyle Eastham, MSE; David Fuqua, MBA; Stephen Griggs, PhD; Elizabeth Payne, JD; Tom Westbrook, PhD

Center for Health Sciences
Provost of the Center for Health Sciences and Dean of the College of Osteopathic Medicine
Kaye M. Shrum, DO

Biomedical Sciences and Graduate Studies
Bruce Benjamin, PhD—Interim Vice Provost for Graduate Studies, Associate Dean for Biomedical Sciences

Anatomy and Cell Biology
Kenneth E. Miller, PhD—Professor and Chair
Professors: William D. Mee, PhD; Kenneth E. Miller, PhD
Associate Professors: Doris K. Pattnuo, PhD; Kent S. Smith, PhD; Anne Weil, PhD; Nedra Wilson, PhD
Assistant Professors: Holly Ballard, PhD; Paul Gignac, PhD

Behavioral Sciences
Vivian M. Stevens, PhD—Professor and Chair
Professors: Richard H. Bost, PhD; Michael H. Piña, PhD; Sue K. Redwood, PhD; Nancy Van Winkle, PhD
Associate Professor: Richard A. Wansley, PhD

Biochemistry and Microbiology
Charles G. Sanny, PhD—Professor and Chair
Professors: Martin W. Banschbach, PhD
Associate Professors: Earl L. Blewett, PhD; Franklin R. Champlin, PhD; Rashmi Naul, PhD; Gervald Köhler, PhD

Clinical Education
Joan E. Stewart, DO, MPH—Professor and Associate Dean

Family Medicine
Christopher Thurman, DO—Professor and Chair
Regina Lewis, DO—Associate Professor and Medical Director
William J. Pettit, DO—Professor, Interim Senior Associate Dean and Associate Dean for Rural Health
Professors: Jenny J. Alexopoulos, DO; Joan Stewart, DO; William Stephen Eddy, DO, MPH
Associate Professor: Lora D. Cotton, DO

Clinical Education
Sarah Cornell, DO, MPH—Assistant Professor and Chair
Forensic Sciences
Robert W. Allen, PhD—Professor and Interim Chair
Professor: R. Tom Glass, DDS, PhD
Associate Professors: Ronald R. Thresher, PhD; Jarrard R. Wagner, PhD

Health Care Administration
Professor: James Hess, EdD

Internal Medicine
Damon L. Baker, DO—Professor and Chair
Johnny R. Stephens, PharmD—Professor and Associate Dean and Vice Chair
Professors: Paul B. Rock, PhD, DO; Gary L. Stick, DO
Associate Professor: Jeffrey S. Stroup, PharmD
Assistant Professor: Masumi Som, DO
Clinical Assistant Professors: Jana Baker, DO; Steven Buck, DO; Katherine Cook, DO; Matt Wilkett, DO

Obstetrics and Gynecology
Joseph R. Johnson, DO—Clinical Associate Professor and Chair
Clinical Associate Professors: Lance Frye, MD; William Po, MD
Research Associate Professor: Anil K. Kaul, MD

Osteopathic Manipulative Medicine
Robin Dyer, DO—Professor and Chair
Professor: Harriet H. Shae, DO

Pathology
Karlis I. Slioka, DO—Associate Professor and Chair
Professor: Joseph Price, PhD
Assistant Professor: Anthony Alfrey, MD

Pediatrics
Rhonda L. Casey, DO—Associate Professor and Chair
Kayse M. Shrum, DO—President, Provost and Dean
Associate Professor: Shawna Duncan, DO
Clinical Associate Professors: M. Hany Elsayed, MD; Colony S. Fugate, DO; Amanda Foster, DO; Rhonda Jeffries, MD
Clinical Assistant Professors: Travis Campbell, DO; Jeremy Jones, DO; Bing Phung, DO; Heather Rector DO

Pharmacology and Physiology
Alexander J. Rouch, PhD, Professor and Chair
Professors: Craig Stevens, PhD; David R. Wallace, PhD
Associate Professors: Bruce Benjamin, PhD; J. Thomas Curtis, PhD; Kathleen S. Curtis, PhD; Randall L. Davis, PhD; Warren E. Finn, PhD; Randy S. Wymore, PhD

Radiology
Dean Fullingim, DO—Clinical Professor and Chair

Rural Health
Clinical Assistant Professors: Jeff Hackler, JD, MBA; Duane Koehler, DO; Denna Wheeler, PhD

Surgery
Michael Thomas, MD—Clinical Assistant Professor and Chair
Associate Professor: Brian C. Diener, DO; Douglas C. Foster, DO
Clinical Assistant Professors: Bill Anthamatten, DO Laurie A. Duckett, DO; Timothy Frink, DO; Hal H. Robbins, DO

Center for Veterinary Health Sciences

Veterinary Pathobiology
*James H. Meinloth, DVM, PhD, DACVP—Professor and Interim Department Head
Regents Professors and Endowed Chairs:
*Anthony W. Camler DVM, PhD, DACVP and Walter R. Stilington endowed chair;
*Robert W. Fulton, DVM, PhD, DACVM and McCasland endowed chair;
*Katherine M. Kocan, MSPH, PhD, and Walter R Stilington endowed chair;
*Susan Little, DVM, PhD, DEVPc and Krull/Ewing endowed chair

Professors: William Barrow, PhD and Stilington endowed chair;
Kenneth Glinkenbeard, DVM, PhD;
*Jean M. d’Offay, DTVM, PhD, DACVM; Richard W. Eberle, PhD;
Sidney A. Ewing, DVM, PhD (emeritus); J. Carl Fox, PhD (emeritus);
*Bill Johnson, DVM, DACVP (emeritus); *Sanjay Kapil, DVM, PhD;
*Rebecca Morton, DVM, PhD, DACVM (emerita);
*Roger Panciera, DVM, PhD, DACVP (emeritus);
*Jerry W. Ritchey, DVM, PhD, DACVP
*Jean E. Sander, DVM, MAM, DACVP

Associate Professors:
*Robin Allison, DVM, PhD, DACVP;
*Melanie Brehm, DVM, PhD, DACVP; Mason Reichard, PhD;
*Timothy Snider, DVM, PhD, DACVP

Assistant Professors:
*Tamara Guil, DVM, PhD, DACVM, DACVP;
Tom Oomens, PhD; *Akhilesh Ramachandran, BS&CAH, PhD, DACVM;
Jared Taylor, DVM, MPH, PhD, DACVM

Clinical Associate Professors: Keith Bailey, DVM, PhD, DACVP;
Eileen Johnson, DVM, PhD; *Theresa Razi, DVM, DACVP

Clinical Assistant Professor: Grant B. Rezazek, DVM, MPH

Associate Research Professor: Edmond Blouin, PhD (emeritus)
Research Associate Professor: Sahla Ayadew, PhD

Lecturer: Kelly Allen, MS, PhD

Residents: Sunao Fujita, DVM; Heather Hend, DVM; Rinosh J. Mani, BVSc; MS; Sheila McShane, DVM; Nicholas Sorensen, DVM; Mee Ja Sula, DVM; Ji Ye Yang, FRSc

Graduate Research Associate: Patricia de Souza Coutinho, DVM, MSc

Veterinary Clinical Sciences

*G. Reed Holoyak, DVM, PhD, DACT—Bullock Professor and Department Head

Professors: Kenneth E. Bartels, DVM, MS; Lion i. J. Dawson, BVSc, MS, DACT;
*Margi A. Gilmour DVM, MS, DACT; *G. Reed Holoyak, DVM, PhD, DACT;
*John P. Hoover, DVM, MS, DACVM, DABFP (emeritus); *Michael B. Lorenz, DVM, DACVM; *Charles G. MacAllister, DVM, DACVM (emeritus); *Mark Neer, DVM, DACVM; *Mark C. Rochat, DVM, MS, DACVS;
*Richard Shawley, DVM, MS, DACVA (emeritus); *D.L. Step, DVM, DACVM

Associate Professors:
*Robert J. Bahr, DVM, DACT;
*Melanie Boileau, DVM, MS, DACVM; *Mary H. Bowles, DVM, DACVM;
Lyndi Gilliam, DVM, DACVM; *Todd Holbrook, DVM, DACVM;
*Henry W. Jann, DVM, MS, DACVS; *John Kirkpatrick, DVM, DABFP (emeritus);
Carolyln T. MacAllister, DVM (emeritus); *Gregor L. Morgan, MSc, PhD, DACT (emeritus)

Clinical Associate Professors: *Marjorie Gross, DVM, MS, DACVA;
*Sonia Crochik, DVM, MS, DACVR

Adjunct Associate Professors: Wei R. Chen, PhD; Alex Cohen, M.D. PhD; William Dubois, DVM, DABVP; *Mark Munson, MD;
*Robert Strestet DVM, MS, DAVCP

Assistant Professors:
*Daniele Dugat, DVM, DACVS; *Andrew Hanzlicek, DVM, MS, DACVM; Candace Jacobson, DVM, DACT; Kimberly Reed, MS, DVM, DACVM, Oncology; Michael Schoonover, DVM, MS, DACVS, DACVSMR

Clinical Assistant Professors:
*Kimberly D. Carter, DVM, DABVP; *Shelby Hayden, DVM, DACT; *Cornelia J. Ketz-Riley, DVM, DACVM; Jonathan Puett, DVM, Sabrina Reilly, DVM; Lesa A. Staubus, DVM;
*Lara A. Sypniewski, DVM, DABVP

Adjunct Assistant Professors:
Bonnie Boone, DVM; *Paul L. Demars, DVM, DABVP

Lecturers: Jeremiah Moore, DVM

Residents: Alicia Bangert, DVM; Clemence Chako, BVSc, MPH, MRCVS; Jennifer Cohen, DVM; Jason Duell, DVM; Aaron Herrndon, DVM;
Anthony Jarchow, DVM; Darla Moser, DVM; Morgan Murphy DVM;
Rachel Oman, DVM; Emily Reppert, DVM; Lana Rothenburg, DVM;
Kathryn Smith, DVM; Freya Stein, DVM; Jackson Walker, DVM;
Chase Whittfeld, DVM; Christine Winslow, DVM

Interns: Jordan Cassidy, DVM; Melissa Cleavinger, DVM; Nicole Enderle, DVM; Laura Katz, DVM; Carrie Kuzma, DVM; Linda Watson, DVM; Lindsey Woods, DVM; Alice Morassi, DVM

Physiological Sciences

Larry E. Stein, PhD—Associate Professor and Interim Department Head

Regents Professor: Lin Liu, BS, PhD (Lundberg-Kienlen Professor of Biomedical Research); Carey N. Pope, PhD (Stilington Chair in Toxicology)

Professors: James E. Breazile, DVM, PhD (emeritus); Nicholas L. Cross, PhD (emeritus); *Michael S. Davis, DVM, MS, PhD (Olay Chair in Equine Sports Medicine);
Jerry R. Malayer, PhD; Charlotte L. Ownby MS, PhD (emeritus); Chris Ross, DVM, PhD; Alastair G. Watson, BVSc, PhD
Adjunct Professors: David W.A. Bourne, BPharm, MS, PhD; Stephen Brimijoin, BA, PhD; Larry P. Gonzalez, BS, MA, PhD; David Marlin, BSc, PhD; Terence H. Risby, PhD
Associate Professors: Guangping Chen, MS, PhD; Myron Hinsdale, DVM, PhD; Veronique Lacombe, DVM, PhD, Diplomate ACVIM, Diplomate ECEIM; James W. Lish, MS, PhD; Pamela G. Lloyd, BA, PhD; *Lara K. Maxwell, DVM, PhD; Joseph P. McCann, PhD; *Dianne McFarlane, MS, DVM, PhD; *Sandra E. Morgan, MS, DVM
Adjunct Associate Professors: Joseph R. Bidwell, BSc, MSc, PhD; David R. Wallace, BS, PhD; Guolong Zhang, BS, MS, PhD
Assistant Professor: Ashish Ranjan, BVSc, PhD
Adjunct Assistant Professor: Terry A. Gipson, BS, MS, PhD
Assistant Research Professors: Chaoqun Huang, MD, PhD; Narasa Raju Tehuaguakula, BSc, MSc, PhD
Research Scientist: Jing Liu Pope, MD, PhD
Research Associate: M. Cristina Munteanu, MS, PhD
Post Doctoral Fellows: Ruchika Fernando, BVM, PhD; Randall Maples, BS, PhD; Sindhura Ramasahayam, BPharm, PhD; Pulavendran Sivasami, MS, PhD; Rohan R. Varshney, BTech, PhD; Fan Yang, BS, MS, PhD
Graduate Teaching Associates: Satyanarayana Achanta, BVSc, DVM;
Graduate Research Associates: Aaron Herndon, BS, DVM;
Rohan Maples, BS; Nabil Rashdan, BS, MS; M. Asitha Silva, BS, MS; Xiao Xiao, BS, MS; Li Zhang, BS, MS
Research Specialist: Kelly Sundstrom, BS
Staff: Dallas Karcher, BD; Christopher H. Pivinski, BS; Lana Schler, BS

Oklahoma Animal Disease Diagnostic Laboratory
*Jerry W. Ritchey, DVM, PhD, DACVP (pathologist)—Professor and Interim Director
Professors: *Bill J. Johnson, DVM (pathologist) (emeritus); *Sanjay Kapil, DVM, MVSc, PhD (virologist), DACVM
Associate Professor: *Gregory A. Campbell, DVM, PhD, MRCVS (pathologist);
Assistant Professor: *Akhilesh Ramachandran, BVSc&AH, PhD, DACVM
Clinical Associate Professor: Keith L. Bailey, DVM, PhD, DACVP (pathologist)
Clinical Assistant Professor: Grant Rezabek, DVM, MS (pathologist)

*Board Certification in Specialty Area
## Graduate College Academic Calendar

Refer also to the University Academic Calendar

<table>
<thead>
<tr>
<th>Event</th>
<th>Fall 2014</th>
<th>Spring 2015</th>
<th>Summer 2015</th>
<th>Fall 2015</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class work begins</td>
<td>Aug. 18</td>
<td>Jan. 12</td>
<td>May 18</td>
<td>Aug. 17</td>
<td>Jan. 11</td>
<td>May 16</td>
</tr>
<tr>
<td>Admission to doctoral candidacy for summer due in Graduate College</td>
<td>Jan. 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admission to doctoral candidacy for fall due in Graduate College</td>
<td></td>
<td>June 12</td>
<td></td>
<td></td>
<td></td>
<td>June 10</td>
</tr>
<tr>
<td>Thesis/Dissertation Workshop (formerly FORMAT REVIEW DRAFT of dissertation or thesis) Attend workshop or watch the on-line tutorial</td>
<td>Oct. 27</td>
<td>Mar. 27</td>
<td>June 12</td>
<td>Oct. 16</td>
<td>Mar. 11</td>
<td>June 10</td>
</tr>
<tr>
<td>Last day to file a diploma application with the Registrar’s Office</td>
<td>Nov. 3</td>
<td>April 1</td>
<td>July 1</td>
<td>Nov. 2</td>
<td>April 1</td>
<td>July 1</td>
</tr>
<tr>
<td>Last day to file a revised plan of study (if needed) and Graduation Clearance Form to Graduate College</td>
<td>Oct. 31</td>
<td>Mar. 27</td>
<td>June 26</td>
<td>Oct. 23</td>
<td>Mar. 25</td>
<td>June 24</td>
</tr>
<tr>
<td>Admission to doctoral candidacy for spring due in Graduate College</td>
<td>Nov. 7</td>
<td></td>
<td></td>
<td>Nov. 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last day to submit results of thesis/dissertation defense forms to Graduate College to meet semester graduation deadlines</td>
<td>Nov. 28</td>
<td>April 24</td>
<td>July 17</td>
<td>Nov. 27</td>
<td>April 22</td>
<td>July 15</td>
</tr>
<tr>
<td>Online submission of electronic dissertation or thesis due for degree candidates</td>
<td>Dec. 5</td>
<td>May 1</td>
<td>July 24</td>
<td>Dec. 4</td>
<td>April 29</td>
<td>July 15</td>
</tr>
<tr>
<td>Term ends</td>
<td>Dec. 12</td>
<td>May 8</td>
<td>July 31</td>
<td>Dec. 11</td>
<td>May 6</td>
<td>July 29</td>
</tr>
<tr>
<td>Graduate Commencement</td>
<td>Dec. 12</td>
<td>May 8</td>
<td></td>
<td>Dec. 11</td>
<td>May 6</td>
<td></td>
</tr>
</tbody>
</table>

**tentative**
Graduate College

College Administration
Sheryl Tucker, Ph.D.—Associate Provost and Dean
Ken Clinkenbeard, Ph.D., DVM—Associate Dean
Jean Van Delinder, Ph.D.—Associate Dean

Campus Address and Phone:
202 Whetnurst, Stillwater, OK 74078
405.744.6371 (Admissions); 405.744.6368; Fax: 405.744.0355
Website: gradcollege.okstate.edu  E-mail: grad-i@okstate.edu

Graduate education at Oklahoma State University (OSU) is organized around the scholarly pursuit of new knowledge, both through didactic instruction and through independent and group research conducted utilizing the facilities and resources of a major research university. Oklahoma State University’s national and international reputation is grounded in the scholarly research and creative work performed by faculty and students under the auspices of OSU’s graduate programs.

The first graduate degree was conferred by OSU in 1912, and the Graduate School was organized in 1929. Oklahoma State University offers more than 200 graduate degree programs, including several interdisciplinary and joint-degree programs.

Graduate Students
Over 5,000 graduate students currently study at OSU. Part of OSU’s mission as a Land Grant University is to serve the people of the region, the state, the nation, and the world by making a first-class education available to all. In response to the growing diversity and demographic changes in the state and in the nation, OSU is committed to preparing graduates to live and work in a culturally pluralistic world. The Graduate College is proud of the diversity of its graduate student population and of their contribution to both the generation and dissemination of new knowledge through their involvement in the university’s research and instructional programs. Numerous multicultural student organizations on campus provide information and support to international and diverse students to assist in the successful completion of their graduate studies.

The Graduate College
The Graduate College supervises all graduate work offered by the university. Professional degrees are offered through the Center for Veterinary Health Sciences and the Center for Health Sciences in Tulsa. The Graduate College sets standards for admission to graduate standing and recommends to the Board of Regents for degrees those students who have completed work required for graduation.

In addition, the Graduate College offers a number of student services and professional preparation opportunities specifically designed for graduate student success while at OSU as well as after graduation. These activities include graduate teaching assistant orientation programming, Three-Minute Thesis competition, and an annual student research symposium during Research Week.

Graduate College Memberships
The Graduate College is a member of the Council of Graduate Schools (CGS), the Conference of Southern Graduate Schools (CSGS), and the Midwestern Association of Graduate Schools (MAGS).

Organization of the Graduate College
Consistent with its objective of maintaining the highest standards in graduate education, the Graduate College administers the policies and procedures specified and established by the Graduate Faculty, Board of Regents for the Oklahoma Agricultural and Mechanical Colleges and the Oklahoma State Regents for Higher Education. The Dean of the Graduate College is the senior administrator of the College as well as the dean for graduate students. The Graduate Council is the executive committee of the Graduate Faculty; it is elected by the Graduate Faculty to work with the dean of the Graduate College in the development and administration of applicable policy. The Graduate Council formulates and reviews policies concerning the conduct of graduate study at OSU, and it participates in the periodic review of graduate programs. All proposed policies and requests related to the initiation and development of graduate curricular offerings and programs are referred to the Graduate Council for review, comment, and approval.

Accreditation
Oklahoma State University is accredited by the Higher Learning Commission, (HLC) of the North Central Association of Colleges and Schools. (HLC, 30 N. LaSalle Street, Suite 2400, Chicago, IL 60602-2504; ph 1.800.621.7440; www.ncahigerlearningcommission.org). Several programs within the disciplinary colleges are also accredited by other agencies; see "Accreditation" in "The University" section of the Catalog.

General Regulations
Full authority on all academic decisions within the Graduate College rests with the dean of the Graduate College. The Graduate College policies and procedures described in the Catalog are for informational purposes. They are subject to regular review and may be revised at any time by the dean of the Graduate College in consultation with the Graduate Council.

Responsibilities
All graduate students are expected to read and to comply with the written regulations of their graduate programs and disciplinary college as well as the Graduate College and University. The regulations presented in the Catalog may be supplemented by written departmental or program requirements available at departmental office and/or websites. Admission to a specific graduate program obligates the student to understand and adhere to the policies of that program.

General regulations in the following sections relate to requirements for admission, enrollment and academic standing. Subsequent sections outline requirements for the following credentials: Graduate Certificate, Master’s, Specialist in Education, Doctor of Education, and Doctor of Philosophy degrees. Particular attention should be given to timing and substantive requirements for matriculation, especially admission, the Plan of Study, residency, language proficiency, research, dissertation/thesis/creative component report, and graduation. The regulations are prescribed by the Graduate Council with the intent of assuring high-quality graduate programs and effective interaction of Graduate Faculty members and graduate students.

Email as Official Correspondence
Oklahoma State University uses the institutional O-Key email address as an official means of communication from OSU faculty, staff, and administrators to students. All students have an official OSU email address that is activated when they set up their O-Key account. Students are expected to activate and check their OSU email on a frequent and consistent basis to remain informed of their official university business and are expected to ensure that adequate email space is available to receive messages.

Request for Waivers
Any request for a waiver of, exception to, or deviation from, any requirement set forth in the “Graduate College” section of the Catalog must be in the form of a written petition to the dean of the Graduate College. Such petitions should include a supporting letter from the faculty adviser or program coordinator.

Services for Graduate Students
Graduate and Professional Student Government Association
The Graduate and Professional Student Government Association (GPSGA) is an official advisory body to the University President and dean of the Graduate College serves as the representative voice for graduate and professional students at OSU. Its mission is to improve all aspects of post-graduate education and student life at OSU.

The Association provides for representation from each graduate and professional degree program. Representatives are nominated by the graduate programs with membership conferred by the GPSGA president. Each representative is appointed for a term of one year; a representative must be in good academic standing and enrolled in at least two graduate credit hours. The GPSGA provides funds for graduate and professional student organizations and travel grants to help students defray costs incurred by attending and presenting at professional meetings. For more information consult gpsga.okstate.edu.

Tuition and Fees
Refer to the section on "Tuition, Fees and Cost Estimates" at the front of the Catalog.

Funding your Graduate Education
Financial Aid
One of the most common sources of funding for graduate students is graduate assistantships. Graduate teaching and research assistantships support OSU’s instructional and scholarly activities. Most academic programs routinely evaluate graduate admission applications not only for admission consideration but also for the possibility of assistantship offers. The graduate program will contact newly admitted students to inform them if a funding offer is available. These awards assist students in paying for their graduate education and also offer opportunities to gain valuable skills and experience in their discipline and as a professional.
Federal Financial Aid

All domestic students who want to qualify for federal financial aid should complete the Free Application for Federal Student Aid (FAFSA). Students are encouraged to complete the FAFSA annually as soon as possible after October 1 as a possible to receive aid for the subsequent academic year. The FAFSA is available at www.fafsa.ed.gov.

OSU Short-Term Emergency Loans

In addition to potential federal loans that may be awarded based on the Free Application for Federal Student Aid (FAFSA), OSU assists students in need of immediate funds through the Short-Term Emergency Loan Program. This program is designed to help OSU students who are currently enrolled and attending classes to meet educationally-related off-campus unexpected expenses. The program is not designed to pay a debt owed to OSU. Qualified students may borrow up to $300 less a $10 service charge one time per semester. Additional information about the Short-Term Emergency Loan Program can be found at financialaid.okstate.edu/component/content/article/52-types-of-aid/110stl.

Graduate Assistants

Oklahoma State University recognizes two types of graduate assistants:

- **A Graduate Teaching Assistant (GTA)** must be admitted to and meet the requirements of the Graduate College, be fully admitted to a graduate program, enrolled, and be under the supervision of an appropriate graduate faculty member. In consultation with the supervisor, the GTA works to gain instructional skills and an increased understanding of the discipline. The GTA is provided a stipend and their primary responsibilities support the University's instructional mission. Services provided by a GTA may include: classroom or laboratory teaching; advising and mentoring of students; proctoring examinations; grading papers, homework, and/or projects; acquiring and organizing, musical or vocal performances, providing artistic instruction or assisting with preparation and management of materials and programs that are utilized in imparting knowledge or in the instructional process; or providing other general assistance in the instruction process. A GTA may be assigned primary responsibilities in an extension, outreach, or service role for which those responsibilities support the instructional mission of the University. GTAs may not be given duties to support faculty research or those primarily clerical in nature.

- **A Graduate Research Assistant (GRA)** must be admitted to and meet the requirements of the Graduate College, be fully admitted to a graduate degree program, enrolled, and be under the supervision of an appropriate graduate faculty member. A GRA is provided a stipend and their primary responsibilities are to provide general support to the University’s research mission. These responsibilities may or may not relate directly to the student’s thesis or dissertation. Duties of the GRA primarily involve applying and mastering research concepts, practices, or methods of scholarship. Services provided by a GRA may include: assisting faculty members in a research or creative activity, performing professional or administrative services that supports research, instruction, professional development, or outreach missions of the University; developing and evaluating instructional materials or curricula, or assuming responsibility for designated scholarly endeavors.

*"Perform degree-related professional or administrative services" does not include jobs that are outside the student’s field of study.

Assistantships inquiries should be addressed to the unit head or graduate program coordinator of the unit/department/school/program in which the appointment is desired. The service expected is governed by the terms of the appointment.

Graduate Assistantship Responsibilities and Benefits

An offer of an assistantship is a commitment by a unit/department/school/program to provide financial support to admitted graduate students. Assistantships are an investment made by a unit/department/school/program and are granted primarily to enable the student to pursue an advanced degree and gain valuable experience. Accepting an assistantship brings with it a professional obligation to fulfill all of the responsibilities associated with the assistantship assignment. Included in this professional obligation is the expectation that students who have accepted an assistantship will diligently pursue their degree to completion. In recognition of this commitment and to provide adequate time for students holding assistantships to devote to study, employment as a graduate assistant is limited to a total, from all University sources (including external grants and contracts), of 0.5 FTE (an average of 20 hours per week) in the Fall and Spring semesters, and 0.75 FTE (an average of 30 hours per week) on the end of the Spring semester and the beginning of the Fall semester. Exceptions to this limitation may be requested by the employing unit or graduate program to the Dean of the Graduate College.

A student with an 0.50 FTE assistantship is expected to devote, on average, 20 hours per week to their duties as a graduate teaching or research assistant; the remainder of academic commitments is devoted to their own studies and research. The time devoted to the assistantship may vary from day to day and week to week as long as it does not exceed the average given above.

As part of a graduate student’s educational experience, OSU makes a number of Graduate Research Assistantships (GRAs) available on a routine basis. Graduate students on a GRA are expected to devote full-time effort to their graduate programs. While the GRA appointment provides a modest stipend for an average of 10 or 20 hours per week for a 0.25 or 0.50 FTE assignment, respectively, in recognition of contributions to the OSU research enterprise, it does not indicate that no additional time and effort may be required of the graduate student who is actively pursuing a graduate research degree.

Depending on the stage of the research project and the graduate student’s advancement in the program, the student may be enrolled in research credit hours for academic credit or only enrolled in formal coursework. Irrespective of that enrollment, it is expected that the graduate student is working full-time toward completion of the advanced degree. OSU, like most institutions nationwide, does not define the research credit hour as equating to a specific amount of time and effort, as the nature of research is highly dependent on the individual’s progress on the project. For instance, general OSU policy only requires a minimum enrollment in two credit hours when a graduate student is working on a research project.

In addition (see “Enrollment Requirements” below), all students holding a graduate assistantship are required to be full-time students. For Fall and Spring semesters, students employed 0.50 FTE must be enrolled in at least six credit hours to be considered full-time, while students employed less than 0.50 FTE must be enrolled in at least nine credit hours to be considered full-time. For the summer term, students employed at any level must be enrolled in at least two credit hours during any summer session to be considered full-time.

International students who are dependent upon an assistantship for their financial guarantee must remember that forfeiture of that assistantship may require the student to re-apply for financial aid. Students are also required to apply for aid through the Office of International Students and Scholars. Also, students who forfeit their graduate assistantships risk rescission of tuition waivers, as well as any health insurance coverage for graduate assistants provided by the University.

Note that all graduate student benefit programs, such as tuition waivers, are only available to individuals with a primary classification as a graduate student. OSU employees taking graduate classes do not qualify for graduate student benefit programs, irrespective of whether their employment is a benefit eligible position. One cannot selectively opt-out of certain benefits to seek eligibility for other benefits. Please contact the Graduate College or Human Resources if you have questions.

General Benefits

Opportunities for Top Tier Fellowships may be available to GTAs and GRAs. Top Tier fellowship funds are disbursed on a monthly basis directly to the student’s Bursars account, each month during the Fall and Spring semesters in which the student holds the GTA or GRA position associated with the fellowship.

Beginning Fall 2013, all new GTAs and GRAs employed at least 0.50 FTE in the fall/spring semester (average of 20 hours per week) are enrolled in a minimum of six (or two for doctoral candidates) eligible graduate hours (tuition waiver) for the same GTA or GRA during the fall/spring semester. Tuition waiver hours of enrollment must be required per the graduate degree program. Summer tuition waivers for the same GTA or GRA will apply during the summer regardless of summer employment. Tuition waivers cannot be applied to independent study, leveling, or outreach type courses. Tuition waiver for GTA or GRA employment during the summer is also contingent upon the student submitting a signed GTA/GRA tuition waiver agreement to the Graduate College by the deadline, in which they acknowledge their employment and enrollment responsibilities associated with the benefit. Contracts are available through the Graduate College website, in 202 Whitehurst, or in employing offices.

Beginning the Spring Semester 2014, any new graduate student employed as a GTA and/or a GRA less than 50% FTE per week will not be eligible for any type of tuition waiver benefit. However, continuing graduate students (from Fall 2013) who remain employed as a GTA or GRA @ 25% FTE minimum will continue to receive a waiver of the non-resident portion (if applicable) of the tuition for all eligible hours taken (i.e., graduate courses offered for graduate credit). Tuition waivers cannot be applied to independent study, leveling, or outreach-type courses.

Health Insurance Benefits

- **Graduate Teaching or Research Assistants employed in a 0.25 FTE GTA/ GRA position during the fall or spring semesters and who are enrolled in at least six graduate credit hours throughout that entire semester are eligible for single-person-coverage health insurance through OSU for the fall semester in question. Note: Spring semester eligibility coverage continues through the following summer regardless of employment or enrollment status.
- **Graduate Teaching or Research Assistants who are not eligible for health insurance coverage during the summer session by virtue of their eligibility during the previous spring semester but who are employed in a 0.25 FTE GTA/GRA position during the summer session and enrolled in at least two graduate credit hours are eligible for single-person-coverage health insurance through OSU for the summer term. The University provides the student’s coverage on a semester-by-semester basis. Students receiving the GTA/ GRA insurance are required to pay the semester health fee. Coverage is through Academic Health Plans, Inc.. Information on the policy is available at www.academichealthplans.com.
Health Insurance for International Students

The Oklahoma State University Board of Regents requires that all visa-holding (i.e. non-immigrant) students at OSU be covered by health insurance. The OSU Student Insurance Policy is the recommended health insurance and will be billed to all non-immigrant student accounts automatically. Payment for the student insurance is included in the costs listed on the financial affidavit that international students are required to submit to receive F-1 or J-1 visa.

The insurance premium can be waived for non-immigrant students sponsored by the United States Government, a foreign government recognized by the United States of America, or certain international, government sponsored or non-governmental organizations. Such waivers will be based on the government or organization guaranteeing payment of all health care expenses including evacuation and repatriation.

The insurance premium will also be waived for students who provide documented evidence of health insurance coverage by an employer. Nonimmigrant students employed by OSU and eligible for both employer-provided insurance and international student health insurance may select between the two, as long as the insurance selected includes evacuation and repatriation coverage.

Students covered by a private medical insurance plan with benefits comparable to or better than the OSU plan, may request a waiver from OSU’s international student health insurance requirement. Coverage must be in effect from the first day of their first semester classes for a 12 month period.

To use alternate insurance, students must complete and submit a waiver request no later than the fifth day of classes. Waiver forms can be found on the International Students and Scholars (ISS) website at http://iss.okstate.edu.

If a student holds an appointment as at least a 0.25 FTE OSU GTA or GRA position, OSU provides the student health insurance policy.

McNair Graduate Fellowships for former McNair Scholars

Entering graduate students who are graduates of a McNair Scholar Program as an undergraduate may be eligible to become McNair Graduate Fellows. McNair Graduate Fellows receive a tuition waiver for all degree-eligible courses up to the number of hours in their degree program, irrespective of a qualifying assistantship. Such tuition waivers cannot apply to independent study, leveling, or outreach-type courses. The McNair Graduate Fellow Tuition Waiver Program is competitive and is not a guaranteed, irrespective of the application waiver received. Please contact the Graduate College (grad@okstate.edu) for more information. Also, note that all graduate student benefit programs, such as the McNair Graduate Fellow Tuition Waiver Program, are only available to individuals with a primary classification as graduate students. OSU employees taking graduate classes do not qualify for graduate student benefit programs, irrespective of whether their employment is a benefit eligible position. One cannot opt-out of certain benefits in an a-la-carte manner to seek eligibility for other benefits. Please contact the Graduate College or Human Resources if you have any additional questions. McNair Graduate Fellows are required to submit the necessary contract to the Graduate College each year and restrictions apply.

Courses Offered Through Outreach

Courses offered through Outreach are considered equivalent to courses offered through traditional formats. Any student wishing to enroll in a graduate credit course offered through outreach must make application for admission to the Graduate College at OSU.

Spouse Tuition Waivers

A spouse of a graduate teaching or research assistant who is receiving a tuition waiver is eligible to apply for a waiver of the non-resident portion of tuition for all eligible courses taken. Tuition waivers cannot apply to independent study, leveling or outreach-type courses. Contact the Office of the Registrar for details.

Student Employment

Career Services provides assistance to OSU students seeking part-time employment or work study programs. Students are informed of job opportunities on campus and in the Stillwater community. Applications are available in room 360 Student Union. Jobs on campus usually offer 12 to 20 hours of work per week in clerical, technical, food service or general labor positions. Rate of pay and work schedules vary.

Individual job search assistance is available with the graduate career consultant in the Student Union Career Services Office or with any of the college career consultants located in the respective disciplinary colleges. Services include resume and curriculum vitae development, written correspondence assistance, mock interviews and interview preparation, academic and non-academic job search assistance, workshops and career fairs. More information may be found online at HireOSUGrads.com.

Special Programs

Certification Programs

Oklahoma State University offers Oklahoma State Department of Education-approved post-bachelor’s certification programs for elementary school principals, school counselors, reading specialists, library/media specialists, and secondary school principals. Certification is also offered in speech and language pathology and in special education.

Master's degrees are available in most of these programs and doctorates are available in many.

Post-master’s level certification programs are available for school superintendents and school psychologists.

Inquiries concerning any aspect of the Professional Education program should be addressed to the Office of Professional Education at 405.744.6252 or the head of the unit/department/school offering the program.

Graduate Programs at OSU-Tulsa, Greenwood Campus

OSU-Tulsa. 700 N. Greenwood Ave., Tulsa, OK, 74106. Oklahoma State University offers several graduate degrees and courses in Tulsa. All courses offered by OSU-Tulsa are considered resident credit for degrees granted by Oklahoma State University. Both current and prospective graduate students are encouraged to utilize the OSU-Tulsa Graduate Student Services Center (GSSC), located in Main Hall 1101. To schedule an appointment with a GSSC representative or to learn more about a graduate program in Tulsa, call 918-594-8445 or email osutulsa@okstate.edu.

The graduate degree, graduate certificate and certification programs that Oklahoma State University offers in Tulsa are listed below and can be found at http://www.osu-tulsa.okstate.edu.

College of Arts and Sciences

MS in Communication Sciences & Disorders
MS in Mass Communications

Spear School of Business

Graduate Certificate in Business Data Mining
Graduate Certificate in Business Sustainability
Graduate Certificate in Entrepreneurship
Graduate Certificate in Information Assurance
Graduate Certificate in Marketing Analytics
Graduate Certificate in Non-Profit Management
Master of Business Administration
MS in Entrepreneurship
MS in Management Information Systems
MS in Telecommunication Management

College of Education

Graduate Certificate in Aerospace Security
MS in Aviation and Space
MS in Counseling
Community Counseling
School Counseling
MS in Educational Psychology
Educational Psychology
Educational Research and Evaluation
MS in Educational Leadership Studies
Higher Education
School Administration
MS in Teaching, Learning and Leadership
Curriculum and Leadership Studies
Elementary, Middle, Secondary, K-12 Education
Mathematics/Science Education
Occupational Education Studies
Reading & Literacy
Secondary Education for Teachers Non-Traditionally Certified
Special Education
EdD in Applied Educational Studies
Aviation and Space Science
EdD in School Administration
PhD in Education
Curriculum Studies
Occupational Education Studies
Professional Education Studies
Social Foundations of Education
PhD in Educational Leadership and Policy Studies
Educational Administration
Higher Education
PhD in Educational Psychology
Educational Psychology
Research and Evaluation

College of Engineering, Architecture and Technology

Graduate Certificate in Engineering Technology Management
MS in Electrical Engineering
MS in Engineering and Technology Management
MS in Environmental Engineering
MS in Materials Science and Engineering
PhD in Electrical Engineering
College of Human Sciences  
- MS in Human Development and Family Sciences  
- Child and Family Services  
- Developmental and Family Science  

Interdisciplinary Programs  
- Graduate Certificate in Global Issues  
- MS in Environmental Science  
- MS in Interdisciplinary Science  
- PhD in Environmental Science  

Prior to enrollment in OSU in Tulsa courses, a student should secure approval from his/her adviser concerning the appropriateness of any courses relative to the degree objective.

Graduate Programs at the OSU Center for Health Sciences in Tulsa  
OSU offers specialized graduate programs in biomedical sciences (MS, PhD, and a dual degree tract D/OPhD) forensic sciences (MFSA and MS) and health care administration (MS) through the OSU Center for Health Sciences (CHS).  

Biomedical Sciences. The MS and PhD programs in biomedical sciences are interdisciplinary programs involving the basic biomedical science disciplines of anatomy, biochemistry, cell biology, microbiology, pathology, pharmacology and physiology. The programs consist of core basic sciences medical courses, additional basic sciences graduate courses, research, thesis for the MS and a dissertation for the PhD. A non-thesis MS is also available.  

Forensic Sciences. The graduate program in forensic sciences is an interdisciplinary master’s program that reflects a broad range of disciplines and offers specialization in both research and non-thesis tracks. All students must satisfactorily complete 39 credit hours to receive the Master of Science in Forensic Sciences.  

Students working toward a degree requiring a thesis can specialize in one of four areas: forensic identification through DNA, forensic pathology, forensic psychology, or forensic toxicology. Successful presentation and defense of a thesis is required for a master’s degree in these areas.  

Non-thesis options include forensic science administration and forensic document examination, with courses in both options offered entirely online. Applicants to the administrative program must have professional experience in a related field, while those entering the document examiner program must be either in training/apprenticeship positions or under the guidance/supervision of a certified document examiner.  

Health Care Administration. The graduate program requires students to take core courses in health care administration and research methods along with a series of electives selected from applicable courses in business and social sciences. The multidisciplinary approach to the health care administration discipline provides students with a unique perspective on the complex issues facing the profession today.  

Admission to the Graduate College  
Holders of baccalaureate or first professional degrees from colleges and universities of recognized standing (including U.S. institutions accredited by agencies recognized by the U.S. Department of Education) are eligible to seek admission to the Graduate College. In some cases the Graduate College, in consultation with the graduate program, may require certain prerequisite courses to bring the applicant’s credentials from international institutions to the equivalent of a four-year U.S. bachelor's degree. These "bridge" courses must be completed within a designated period of time and/or prior to enrollment beyond a prescribed number of hours of graduate course work. Applicants must complete the web-based application and submit official transcripts of all academic work and degrees received including any previous graduate coursework and degrees. No Application for Admission will be reviewed until the application fee is paid.  

1. The prospective student should obtain transcripts for bachelor's degree(s) conferred or pending as well as for any graduate course work and upload these transcripts as part of their application (some programs may require applicants to upload transcripts from all institutions previously attended). If an applicant is offered admission to graduate studies, then the applicant will be required to have the institution that granted their bachelor’s degree send one official transcript to the Graduate College, 202 Whitehurst, Stillwater, OK 74078.  
2. To be official, the transcript must be issued from the school and must show the complete scholastic record, bear the official seal of the institution, be signed by the issuing officer, and be in a sealed envelope.  
3. To assure adequate time, completed applications and transcripts should be received at least 30 days prior to the graduate program application deadline or the beginning of the semester, whichever comes first. All transcripts become the property of OSU and are not released or returned.  

When the applicant’s file is complete, the faculty in the graduate program of the student’s choice will review the material and recommends an admission status to the dean of the Graduate College. The final decision for admission to the Graduate College is determined by the dean on the basis of the graduate program’s recommendations, prior academic performance of the applicant, and availability of space, facilities, and faculty mentors in the program.  

Types of Admission  
Admission to a graduate program at Oklahoma State University is based on an evaluation of an applicant’s overall record, experience, personal qualifications, proposed area of study, and fit with the graduate program. The Graduate College does not set minimum GPA requirements and allows graduate programs to evaluate applications holistically, but generally successful graduate applicants possess a 3.00 cumulative GPA from their undergraduate and/or graduate work. Academic programs may set more stringent admission requirements. Please check with the graduate program to which you are applying in order to determine any program specific requirements.  

Admission Without Qualification. Students planning to work toward a graduate degree in a recognized graduate program may be admitted in good standing provided they meet all Graduate College and graduate program requirements.  

Provisional Admission. A student can be admitted provisionally upon recommendation of the graduate program and with concurrence by the dean of the Graduate College. Admission with provisional status is granted to an applicant who does not meet one or more of the graduate program’s admission requirements or when the applicant does not have the necessary academic background. In this case, the graduate program requires specific provisions be set for admission in good standing. For example, a graduate program may require additional leveling coursework or higher test scores. The first obligation of a student admitted provisionally is to successfully meet all of the provisions specified at the time of admission. Failure to meet these provisions could result in the dismissal from the program.  

Probation Admission. A student can be admitted with probation status upon recommendation of the graduate program with concurrence by the dean of the Graduate College. Admission with probation status is granted to an applicant who has deficiencies in previous academic work. A student admitted on probation status must make at least a 3.00 GPA through the semester in which s/he completes nine hours of courses eligible for graduate credit. Upon successful fulfillment of these requirements the student will be granted good academic standing. Failure to meet the required level of academic performance while in a probationary status may result in dismissal from the Graduate College.  

Conditional Admission. Several graduate programs at OSU will consider an applicant for conditional admission. An applicant can be admitted conditionally upon recommendation of the graduate program and with concurrence by the dean of the Graduate College. Conditional admission means that the applicant is academically qualified for admission to the graduate degree program but lacks a minimum TOEFL or IELTS score which satisfies the University’s or graduate program’s minimum (see “International Student Admission” for minimum requirements). Before the applicant will be allowed to matriculate in the graduate degree program, a sufficient TOEFL or IELTS score must be submitted. Failure to submit a sufficient TOEFL or IELTS score will result in the applicant not being allowed to enroll.  

Non-Degree Seeking Admission. An applicant may be admitted to the Graduate College as a non-degree seeking student if the or she does not have immediate plans to become a degree candidate, but wants to take graduate courses, prerequisites, or other courses. Admission to the Graduate College as a non-degree seeking student means only that the student will be permitted to enroll in courses through the Graduate College. It does not imply that the student has been or will be admitted to a program leading to an advanced degree or that the student will be able to obtain a graduate degree from OSU.  

Requirements:  
1. Non-degree seeking students are subject to the same admission standards as degree-seeking students, including English language proficiency. Applicants for non-degree seeking student status are not automatically admitted without due deliberation of their past academic performance. A non-degree seeking applicant can be considered for admission “Without Qualification” provided his/her overall GPA is 3.00 or higher for all courses on his/her bachelor’s degree transcript and/or transcripts from his/her graduate courses. An applicant whose GPA does not meet this criteria can be considered for admission after consultation and recommendation of the Graduate College’s non-degree seeking student adviser who may consider additional factors in making a decision, such as:  
   • Length of time since last attendance at an institution of higher learning;  
   • A written appeal from the applicant explaining exceptional circumstances that warrant admission, and/or  
   • A letter of recommendation written by faculty who can speak to the applicant’s potential for graduate work.  
2. The prospective student is responsible for filing a new application for admission to the Graduate College should he or she wish to become a degree-seeking candidate. The new application will be evaluated by the graduate program and the dean of the Graduate College to ascertain admissibility to the degree program.
by the State Regents as described above. Upon successful completion of a minimum of 12 weeks of study at an intensive English program (IEP) approved immediately prior to admission, the applicant must successfully complete a minimum of 12 weeks of study at an intensive English program (IEP) approved by the State Regents as described above. Upon successful completion of the ELI program students will be issued an I-20 by the Office of International Students and Scholars and will be admitted into their graduate degree program. Such students will be required to take the institutional TELP (see below) at the first opportunity thereafter and to comply with its provisions. Students must continue to enroll in ELI until successful completion. Concurrent enrollment in graduate courses and ELI is not permitted.

Students who submit TOEFL scores from the iBT for reading, listening, and writing shall also be evaluated to determine if additional course work is needed. Students who submit TOEFL scores and whose score at least 42 on the combined reading and listening portions, with a score of at least 20 in each section, are not required to enroll in any English language proficiency courses. Students who score less than this on the reading and listening portions of the iBT (irrespective of the score on the written portion) are required to enroll in ENGL 0003 during their first semester. ENGL 0003 carries a grade of S/U and may not be used toward minimum degree requirements. Students must enroll in ENGL 0003 each semester until a grade of S is earned. Students who complete ENGL 0003 and who have a score less than 22 on the writing portion of the iBT are also encouraged to enroll in ENGL 4893*.

Students who score at or above the minimum score(s) on the reading and listening portion of the TOEFL but less than 22 on the writing portion, are required to enroll in ENGL 4893* at some point in their studies. ENGL 4893* carries graduate credit and may be used toward minimum degree requirements; a grade of C or better in this course is required.

In situations when the student is required to take ENGL 0003 or ENGL 4893*, the appropriate course must be listed on the student's Plan of Study and become part of degree completion requirements.

International Student Admissions

International students who are not native English speakers and who submit a PBT (paper-based test) version of the TOEFL, or who take the IELTS, must take the Test of English Language Proficiency (TELPS) upon arrival at OSU and comply with the provisions associated with that test. The TELPS is administered to International students in the TELP in the English Language Institute (ELI), is a state-approved IEP. More information on the OSU ELI program.

International Student Admissions

International applicants are expected to submit admission. Academic advising for non-degree seeking students is provided by an adviser in the Graduate College. Students should contact the Graduate College at 405.744.6368 or grad@okstate.edu for details.

International Student Admissions

International applicants are expected to submit applications, financial affidavits, transcripts and/or mark sheets, and, if required, official scores of the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) examinations by March 1 for fall enrollment and by August 1 for spring enrollment. Applications that become complete after these deadlines may require additional documentation; the Graduate College cannot guarantee that an admissions decision will be made with sufficient time for the issuance of the I-20 form required to obtain an entry Visa.

English Proficiency

As a condition of admission to graduate study at OSU, all persons for whom English is a second language are required to present proof of English language proficiency. Students admitted into a graduate program at OSU or in other institutions of higher education. A waiver of this requirement can be obtained for students who have completed a baccalaureate or graduate degree from an accredited institution of higher learning, at which English is the primary language of instruction, located in a country in which English is a recognized primary language. Note, however, that proof of specific English proficiency through the submission of test scores, such as the Internet Based TOEFL (IBT) scores, or additional testing may be necessary if employment as a graduate teaching assistant is desired. Graduate programs may have additional requirements.

Proof of English competency can be in the form of an official TOEFL or IELTS, (academic stream), score. Either examination must have been within the last two years. Applicants who present evidence of undue hardship or other extreme extenuating circumstances may be admitted without a TOEFL or IELTS score; however, such students will be required to take the Test of English Language Proficiency (TELPS) immediately upon arrival at OSU, and to comply with the provisions associated with that test.

Applicants who present a TOEFL score of at least 79 iBT/550 PBT or an IELTS academic stream score of at least 6.0 must pass the Graduate College's English language proficiency requirements for admission to a graduate program. Note that some graduate programs require a TOEFL score above these levels, and applicants should contact the program for specific TOEFL or IELTS requirements.

Applicants who present a TOEFL score of at least 61 iBT/500 PBT, but less than 79 iBT/550 PBT (or an IELTS academic stream score of 6.0) must successfully complete a minimum of 12 weeks of study at an intensive English program (IEP) approved by the Oklahoma State Regents for Higher Education (OSRHE) State Regents. At least two-thirds (eight weeks) of the 12 weeks must be instruction with the provision of a Dean of the Graduate College, or his/her designee. To ensure that non-degree seeking students do not inadvertently exceed this limitation, an enrollment hold will be placed on each student in this status after the student has registered for six or more hours. This hold may be removed by the Graduate College (see below) once the student has formally re-acknowledged this nine-hour limitation.

Non-degree seeking students are subject to the same academic regulations as those of students admitted into graduate programs. Such students are encouraged to enroll in 12 semester hours of graduate degree courses each semester. ESL students, upon successful completion of the course, may apply to be admitted as regular graduate students.

International Student Admissions

International applicants are expected to submit admission. Academic advising for non-degree seeking students is provided by an adviser in the Graduate College. Students should contact the Graduate College at 405.744.6368 or grad@okstate.edu for details.

Test of English Language Proficiency

Test of English as Foreign Language (TOEFL) or International English Language Testing System (IELTS) or Test of Written English (WTE) or the Test of Spoken English Proficiency for Employment

OSU policy requires all persons for whom English is a second language to demonstrate an acceptable level of spoken English before being employed in an instructionally related capacity, including laboratory assignments. Graduate students who serve only as laboratory assistants (e.g., setting up and/or maintaining equipment) are not required to comply with these provisions. See http://gradcollege.okstate.edu/ita for specific policy requirements.

International Teaching Assistant Program

Any new international teaching assistant (ITA) is required to have a qualifying score of 27 or greater on the speaking portion of the iBT or to take the iBT test prior to being hired for instructional assignments. All new ITAs are also required to participate in the international teaching assistant orientation. See http://gradcollege.okstate.edu/ita for specific policy requirements.

Transfer of Graduate Credits

Transfer credit must be recommended by the graduate student's advisory committee through the submission of a Plan of Study that is approved by the dean of the Graduate College.

1. Transfer credit will only be considered if it was earned when the student was enrolled at or above the baccalaureate level (i.e., after earning a bachelor's degree) at an accredited institution and the applicable course(s) was/were certified as graduate credit by that institution. All courses used as transfer credit must have a grade of "B" or better.

2. Transfer of credits from medical professional programs (e.g., DO, DVM and MD) to the Graduate College may also be considered when a student was admitted to a medical professional program at another accredited institution and the applicable courses were certified for enrollment restricted to professional-level students. All courses used as transfer credit must have a grade of "B" or better or a grade of "pass" for those institutions which only offer professional-level courses as a "pass/no pass" grading system.

3. Up to three hours of transfer credit may be used toward an OSU graduate
certificate and up to nine credit hours of transfer credit may be used toward any OSU graduate degree. A doctoral student may transfer more than nine hours if the courses in question were housed in a department or program that offers an EdD or PhD (or equivalent) degree. Doctoral students must include a minimum of 30 hours of OSU credit on their Plan of Study.

Faculty Members. A member of the faculty, with the rank of associate professor or above, with a term of 12 months or equivalent rank at the time of completing the requirements, may be granted a degree from this institution. This regulation also applies to faculty members in the schools of engineering holding the rank of assistant professor or above.

Enrollment

Initial and Continuous Enrollment Policy. A prospective student must enroll for courses at OSU within the time specified in his or her admission letter to retain active status. A prospective student who does not conform to these conditions must reapply for admission.

Any student who interrupts enrollment for one year (i.e., a consecutive period of one fall semester plus one spring semester plus one summer term) must reapply for admission, and will be subject to the regulations in effect at the time of reaplication.

Enrollment as a Non-Degree Seeking or Graduate Student

Students with a bachelor's degree are expected to enroll in the Graduate College unless they want to obtain another bachelor's degree. If they enroll as an undergraduate student, the courses taken cannot be given graduate credit at a later date.

Time to Degree

Graduate College matriculation starts when a student first enrolls as an admitted degree seeking graduate student. That date will be used in calculating time limits for degree completion.

In accordance with the Oklahoma State Regents for Higher Education policy, students are expected to complete the requirements for a graduate certificate, master's, or specialist degree within seven years from first enrollment after admission to the graduate program. Students are expected to complete the requirements for a doctoral degree within nine years from first enrollment after admission to the graduate program. After that time a student must submit a written petition to the Graduate College requesting an extension of time-to-degree limits. Credit for all courses on a graduate Plan of Study must have been awarded within ten years of completion of all degree requirements. Any exception to these time limits must be approved by the dean of the Graduate College.

Leave of Absence

Oklahoma State University (OSU) graduate students are expected to maintain active status through continuous enrollment from the time they matriculate until they graduate. Students who are not able to maintain active status are strongly encouraged to consult with their program, advisor, and Graduate College to determine whether requesting a leave of absence (LOA) is the most appropriate course of action. International students must consult with the International Students and Scholars (ISS) office to ensure compliance with Federal immigration policy. Example situations that may lead a student to explore a leave of absence request are: 1) personal, family or medical emergency; 2) military service; 3) study in another country; 4) internship or residency; 5) employment; 6) travel; 7) academic. Students who do not have an approved leave of absence and are not continuously enrolled may experience negative consequences related to academic, visa, financial aid, and other student issues – see University policies and guidelines for additional information. A student status of “good standing” (academic and conduct) is generally required for a leave of absence. Please see http://gradcollege.okstate.edu/leave-of-absence-policy for additional leave of absence information.

Enrollment Requirements

To be considered enrolled full time, a graduate student must be enrolled in at least nine hours in either fall or spring semester and at least four hours during the summer sessions. Full-time enrollment for Graduate Teaching/Research Associate/Assistant (GTAs/GRAs) with a 0.50 FTE appointment is at least six hours in either fall or spring semester and at least two hours during a summer session.

Students are required to be enrolled in at least two credit hours in each semester in which they are using physical or faculty resources of the University. (Students holding graduate assistantships should note that additional requirements apply; see below.) Regardless of the number of hours taken, a student may not enroll in more than 12 (16 for the Spears School of Business graduate programs) credit hours in the fall or spring semester without permission of the dean of the Graduate College. During the summer session, a student may not enroll in more than nine credit hours taken in any session during the eight-week summer period. No more than three credit hours can be taken during the first summer session (interrupted summer session is defined as any course that begins after the end of the spring semester and ends prior to the beginning of the eight-week summer session. For any short course session less than eight weeks in length, enrollment shall not exceed one credit hour for each week.

International students on F-1 or J-1 visas must maintain full-time status (as defined below) during the first semester of enrollment, and during each fall and spring semester thereafter.

Each degree-seeking graduate student must be enrolled in at least two hours of courses eligible for graduate credit during their graduating semester (defined as the semester in which they satisfactorily complete all degree requirements). However, a student would not need to be enrolled in more than eight hours during the fall or spring semester if they meet the following conditions: 1) they have assigned an “Incomplete” (grade of I) in a non-research or creative component course; 2) the course(s) required for graduation, which was completed is received is the only graduation requirement left to fulfill. Students may enroll in research, thesis, or dissertation hours, as appropriate, during each semester in which they are involved in research leading to a thesis or dissertation, irrespective of the number of credit hours of such courses either required or permitted for the degree.

Master’s Enrollment Requirements. Students with a fall (spring/summer) graduating semester who have research courses (i.e., courses numbered 5000) on their approved Plan of Study must satisfactorily complete no fewer than six hours of courses eligible for graduate credit during the calendar (academic) year which includes the graduating semester. As an example, a student wishing to graduate in a fall semester must be enrolled in a total of at least six hours for that fall semester plus the preceding spring semester and summer session. Doctoral students meet this requirement by virtue of the Doctoral Candidacy Enrollment Requirements noted below.

Doctoral Candidacy Enrollment Requirements. Doctoral students who have completed the requirements for admission to doctoral candidacy and had their “Admission to Doctoral Candidacy” form approved by the Graduate College may enroll for a minimum of at least two credit hours during any term and be considered full-time. This policy applies to both full-time and part-time GTAs, GRAs and international students. A student is normally expected to enroll primarily in research hours in or program-approved courses after being admitted to doctoral candidacy.

Continuous enrollment post-candidacy is required of all students. Enrolment of a minimum of at least two credits per semester is required for every semester of a student’s candidacy (summer session excluded) until graduation. It is ultimately the responsibility of each student to ensure that they meet this enrollment requirement.

Enrollment and Financial Assistance. For the purpose of receiving monetary assistance through the Office of Scholarships and Financial Aid, the amount of the award is related to the total number of enrolled credit hours that apply toward the degree (for graduate students, such courses must be offered for graduate credit), including 3000*, 4000* (G sections only), 5000 and 6000 level courses. OSU master's, specialist, doctoral and graduate certificate degree programs are aid-eligible programs, depending on a person's personal circumstances.

In general, a graduate student must be enrolled in four hours of courses eligible for graduate credit each fall and spring semester, and two hours of courses eligible for graduate credit in the summer term, to be eligible for federal financial aid. Students may be required to enroll in more than two credit hours each fall, spring or summer to receive the full amount of federal financial aid. Students should verify with their financial aid adviser in the OSSU Office of Scholarship and Financial Aid about the number of hours they are required to take. Certifiable enrollment status, based upon a combination of enrollment and employment, only assists with the deferral of loan repayments, never qualification for aid, which is based solely on enrollment.

Graduate Student Enrollment in Undergraduate Courses

Students admitted to the Graduate College may enroll in, or audit, undergraduate courses or course sections that do not carry graduate credit if approved to do so by their graduate faculty adviser. Such courses cannot subsequently be used as part of a graduate Plan of Study and are not generally covered by graduate tuition waiver programs.

Some 3000 and 4000 level courses are approved for both undergraduate and graduate credit; these courses are noted with an asterisk (*) in the Catalog and are offered in both numeric sections (for undergraduate credit) and G sections (for graduate credit). Enrollment in such a course by a graduate student will normally be in a G section (for graduate credit); additional assignments at an intellectual level commensurate with that of graduate work when compared to the level of undergraduate credit is required to not exceed the undergraduate credit. Some graduate students may, however, wish to enroll in the undergraduate sections for undergraduate credit only (e.g., to complete additional courses specified in the graduate admission provisions). They may do so by completing the "Graduate Student Seeking Undergraduate Credit for 3000/4000 Courses" form and submitting it to the Office of the Registrar by the end of the second week of the regular semester, or by the end of the first week of the summer session, in which the 3000/4000 course is taken. Submission of this form implies that the student wishes to be graded using the same criteria and course completion requirements used for undergraduates in the course. Such courses may not subsequently be used as part of a graduate Plan of Study and are not generally covered by graduate tuition waiver programs.
Undergraduate Student Enrollment in Graduate Courses

An OSU undergraduate senior may take a limited number of courses for graduate credit toward an OSU degree program. The credits may not be utilized for both a baccalaureate degree and a graduate degree. The courses in question must be approved for graduate credit (denoted by an asterisk next to the course number in the Catalog, and the student must enroll in the G section (if enrolling in a 3000 and 4000 level course). The applicability of such graduate courses to a specific graduate program will be determined by the student's graduate advisory committee when the student enrolls in the Graduate College and submits a Plan of Study for an advanced degree.

To receive graduate credit, a Graduate Credit for Seniors form must be completed by the student to receive graduate credit for courses taken. This form must be submitted prior to the end of the second week of class instruction of a regular semester, or the first week of a regular summer session. The required form is available on the Graduate College's website or in the Graduate College.

Such credit may be earned only if the following conditions are satisfied at the time of application:

1. Students must have a minimum cumulative graduation/retention undergraduate GPA of 3.00.
2. The total semester enrollment must not exceed 18 credit hours for a regular semester or nine credit hours for a summer session.
3. The student must be within 12 semester credit hours of completing requirements for the baccalaureate degree at the beginning of the semester or summer session in which courses are taken for graduate credit.
4. Admission to courses taken for graduate credit must have approval of the course instructor, the dean of the disciplinary college associated with the student's major, and the dean of the Graduate College.

Not more than 15 semester credit hours taken while a senior may be approved for graduate credit. The student must earn a grade of "B" or higher in those courses for which he or she seeks graduate credit. Credit will be applied to the student's graduate transcript only after the student has been admitted as a graduate student at OSU. Students are cautioned that institutions other than OSU may or may not allow courses taken for graduate credit during the senior year to be transferred into one of their graduate degree programs.

Courses Offered Through Outreach

Courses offered through Outreach are considered equivalent to courses offered through traditional formats. Any student wishing to enroll in a graduate credit course offered through outreach must make application for admission to the Graduate College at OSU.

Correspondence Credit

Oklahoma State University does not offer graduate level courses by correspondence and does not accept credit taken by correspondence toward an advanced degree. Graduate students may enroll in correspondence courses; however, such courses will not be considered as part of minimum graduate degree or certificate requirements. Tuition waiver programs are not applicable to courses taken through correspondence study. Courses taken through correspondence do not count toward minimum enrollment requirements for any graduate student.

Enrollment Procedure

Students are strongly encouraged to review the course offerings for the upcoming semester prior to attempting to enroll. For convenience, OSU provides two options to review course listings.

1. The class schedule for upcoming semesters is available for download as a PDF file from the Office of the Registrar at registrar.okstate.edu.
2. Available courses for upcoming semesters can be viewed using the SIS web system prodosu.okstate.edu. Select the “Available Courses” icon.

First semester graduate students must first obtain their adviser's clearance through the Student Information System prior to attempting to enroll. If the student has not completed a Plan of Study or if this is the first semester as a graduate student, the student should consult with the graduate faculty adviser. The graduate faculty adviser can provide information about required courses, course sequencing, and other information in order to select appropriate courses. The adviser should give approval for course selections prior to enrollment. All graduate students must complete Responsible Conduct of Research (RCR) requirements prior to the submission of a Plan of Study. A student should consult with his or her graduate coordinator as to what these requirements are in his or her graduate program. A Plan of Study will not be approved by the Graduate College until the department has certified RCR completion.

If a Plan of Study has been completed, the student should verify that all planned courses are listed on the Plan of Study. Students should consult with their adviser any time they deviate from courses listed on the Plan of Study. The ultimate responsibility for completing degree requirements rests with the student. Students who have active academic, financial or advising holds must clear these holds prior to attempting to enroll. Students can view any holds by logging into the SIS system at prodosu.okstate.edu.

There are three ways graduate students can enroll:

- **Online.** Graduate students may enroll using the Student Information System (SIS) prodosu.okstate.edu. The system gives students access to their academic records.
  - First semester students must first obtain their adviser's clearance through the SIS computer system prior to attempting to enroll.
  - Non-degree seeking students may be granted enrollment clearance through the Graduate College. Non-degree seeking students will be provided assistance with selecting course work, issues surrounding the transferability of special student credits, applying to degree-seeking programs, and other academic topics.
  - Students without a completed Plan of Study should first meet with their advisers to determine their class schedules for the semester.
  - Students will need their student CWID and PIN numbers to access the SIS system. The initial PIN number is set to the student's date of birth. Students may change their PIN through the SIS system.

- **In Person.** Graduate students may enroll in person in Stillwater or in Tulsa.
  - In Stillwater, students can go to the Office of the Registrar located in 322 Student Union. Students will need to have their Drop/Add Cards or Permission Memos approved and signed by their academic advisers before they enroll.
  - In Tulsa, students can go to OSU-Tulsa Graduate Student Services Center (GSSC), located in Main Hall, 1101 for assistance. Students will need to have Drop/Add cards or Permission Memos approved and signed by their academic advisers before they can enroll.

- **Through the Graduate Adviser or Department.** Students can contact their graduate adviser, graduate coordinator, or academic program to ask for assistance.

**Late Day To Enroll**

Information regarding dates to enroll, when courses begin, and last days to drop are listed in the Class Schedule available at the Office of the Registrar's website at registrar.okstate.edu.

Generally, the sixth class day of a regular semester or the third class day of the eight week summer session is the last day a course may be added (nonrestrictive) via the SIS enrollment system. A course may be added no later than the first day of the short course.

**Late Enrollment**

Graduate students should enroll prior to the end of the official enrollment deadline for the semester. If they do not, there are limited options to enroll in classes. The options available to the student depend on the number of weeks past the deadline and the student's current enrollment status.

During the second week of fall/spring or first week of the eight-week summer session:

- If a student wishes to add course hours or is not currently enrolled, they must submit a drop/add card or Trial Study signed by their adviser giving permission to enroll.
- If the student is adding a course they must have the instructor's signature on the add/drop card or Trial Study.
- If a student is non-degree seeking, they must have the signature of the dean of the Graduate College and the instructor of the course in which they wish to enroll.

After the second week of fall/spring or first week of the eight-week summer session graduate students may add any course which has not started.

**Other Enrollment.** In order to enroll in a given semester, a student must have received grades for at least six semester credit hours (including "I" and "R" and excluding "W") in the 12 months prior to the beginning of that semester.

**Academic Regulations**

Refer also to “Student Enrollment” information in the “Registrar” section of the Catalog.

**Graduate Credit Courses**

Courses numbered 5000 and above are for graduate students. Seniors who have obtained prior approval from the Graduate College may enroll in graduate level courses in accordance with the provisions of "Enrollment" stated earlier.

Courses numbers 3000 and 4000 that are identified by an asterisk in the "Course Descriptions" of the Catalog can be taken by graduate students and may be used to meet requirements for a graduate degree on the Plan of Study if approved by the student’s advisory committee and the dean of the Graduate College. In order to receive graduate credit, students must enroll in the G section of the course. Graduate students enrolled in these courses will be considered
as taking the courses for graduate credit (unless they pre-declare the course for undergraduate credit; forms are available in the Graduate College) and will be expected to complete additional assignments at an intellectual level commensurate with graduate level work as proposed by the instructor. Courses that are not identified by an asterisk may not be used to fulfill requirements for a graduate degree.

Academic Standing

Minimum Grade Requirements. A grade-point average of "B" (3.00) is required to (1) maintain good standing as a graduate student and (2) meet requirements for a degree. No course with a grade of "D" or "F" can be used on the Plan of Study to satisfy the degree course requirements. At the graduate level, a grade of a "D" or "F" is a failing grade that can result in dismissal by the dean of the Graduate College, regardless of academic standing. In determining whether a student has met minimum requirements for a degree, grades for courses on the Plan of Study are averaged separately from courses not on the Plan of Study. In order to continue enrollment in the Graduate College, a graduate student is expected to maintain a minimum graduate GPA of at least 3.00. In order to receive a degree, a student must have a minimum 3.00 GPA in the course work listed on the Plan of Study.

No course with a grade below "C" can be used as part of the minimum number of semester credit hours required for the graduate degree. Some departments have more stringent requirements. The major department should be consulted concerning minimum grade requirements.

Academic Progress. Each semester, the dean of the Graduate College reviews the academic progress of any graduate student who receives a grade of "C" or lower in a class or pass/fail in research. Programs are notified if their students have received a "C" or lower and of the dean of the Graduate College's academic progress decision. At the discretion of the dean of the Graduate College, one of four actions based on the student's current semester performance and past academic history will be taken:

1. Program Notice. The program department is notified and is encouraged to review the student's performance to determine if any program intervention is needed.
2. Academic Probation. If a student's overall GPA drops below a 3.00, if a "UR" grade is earned, or if the dean of the Graduate College judges the student's overall academic performance warrants so warrants then s/he is subject to being placed on academic probation. At the discretion of the dean of the Graduate College, probation may be removed at the end of the semester only after the student brings his or her cumulative GPA for courses eligible for graduate credit taken at OSU to 3.0 or greater, earns a SR grade, and/or completes all degree requirements, whichever comes first.
3. No Further Enrollment Without Program Consent (NFEWPDC). a. If the student was admitted on academic probation and did not meet the requirements of this admission, or b. If they have received two consecutive grades of "UR", or c. If the student was on academic probation the previous semester, or d. If the dean of the Graduate College believes the student’s overall academic performance warrants program intervention, then the student is not permitted to enroll further without the consent of the program. To continue in the program, the student must submit a written petition to the dean of the Graduate College requesting reinstatement and outlining a plan to remediate the academic situation. This petition must be accompanied by a letter of support from the department head or graduate program coordinator. Failure to submit such a reinstatement petition could result in the canceling of any pre-enrollment for the upcoming semester.
4. No Further Enrollment (NFE). The student has consistently performed below the acceptable standards for graduate students. The student is not permitted to continue graduate study at OSU.

Grades for Thesis (5000) and Dissertation (6000). The grade of "SR," indicating satisfactory progress, or "UR," indicating unsatisfactory progress, or "UR," indicating an incomplete (see Section 6.2 Grade Interpretation) will be assigned to thesis (5000) and dissertation (6000) courses at the end of the semester in which the course is taken. These grades are permanent and have no impact on a student's grade point average, but affect the graduate student's academic standing. Only courses in which a grade of "SR" or a previously-awarded grade of "R," "A," "B," or "C") is earned may be used toward minimum degree requirements.

Grades for Creative Component Courses. The "R" grade can be assigned in a course identified as a creative component of a master's degree by the graduate program concerned. The grade of "R" may be assigned if more than one semester is required to complete the creative component. Upon completion of the creative component, the advisor submits a Change of Grade form to have the final grade entered. A "P" grade is required in a pass/fail course to meet the degree course requirements. A "P" grade in a course identified as a creative component is also required to count toward a master's degree.

Pass-No Pass Grading System. Graduate students may take a course utilizing the Pass-No Pass grading system with the consent of their faculty advisers, but courses taken under this system cannot be used on a Plan of Study to meet graduate degree requirements. A student who chooses the pass-no pass option must do so by the last date on which a course may be added. See Section 6.6 Grades and Grading.

Pass-Fail Grading System. Graduate students may take courses utilizing the Pass-Fail grading system with the consent of their faculty advisers; however, only a limited number of these hours can be used on a Plan of Study to meet graduate degree requirements and these require advance permission of the Dean of the Graduate College. Pass-Fail courses are typically internships, practicum, seminar, special problems and student teaching. See Section 6.7 Grades and Grading.

Course Grade Appeals. A student may appeal a grade given by an instructor in a case in which the instructor does not follow a course grade appeal policy. The student should consult the "Student Rights and Responsibilities" or contact the Office of Academic Affairs for information regarding initiating the appeals process.

Appeals of Research Grades and Non-grade Issues. A student wishing to appeal a "UR" grade issued for a research course (5000 or 6000), or an academic issue not involving a grade should contact the dean of the Graduate College about the appeals process available to graduate students.

Advisory Committee Decisions-Criteria for Passing. In decisions resulting from a vote of a graduate student advisory committee (e.g., PhD candidacy exam, final thesis defense, approving a dissertation, etc.), a pass requires that the thesis/dissertation adviser vote in the affirmative and that no more than one member of the committee dissent. Graduate programs may impose more stringent requirements.

Discontinuance from a Program. In instances when a student reaches a situation when it is no longer possible to complete the intended degree (e.g., failure to complete the pass/fail option or the PhD qualifying exam, comprehensive exam or candidacy exam), and is still in good academic standing with the Graduate College, a student may be considered for transfer to non-degree seeking student status and be subject to all non-degree seeking student rules (including maximum number of hours that can later be used toward a graduate degree or certificate program). If visa restrictions prohibit the student’s matriculation as a non-degree seeking student, the Graduate College will inform the Office of International Students and Scholars of the student’s impending dismissal from the program; the student will have until the end of the semester to be admitted into another graduate program. This change in status is initiated with a letter from the department head or graduate program coordinator to the student, copied to the dean of the Graduate College, and should detail the reasons for the student’s dismissal from the program. The student has 14 calendar days from the dismissal letter date to initiate the appeals process.
Graduate students should contact the dean of the Graduate College about the appeals process.

Responsible Conduct of Research

All graduate students must complete Responsible Conduct of Research (RCR) training requirements prior to the submission of a Plan of Study. A student should consult with his/her graduate coordinator as to what these requirements are in his/her graduate program. Graduate programs may impose more stringent requirements. The Plan of Study will not be approved by the Graduate College until the graduate program has certified RCR completion. Information and University policies regarding RCR can be found at http://compliance.vpr.okstate.edu/Ethical/ethical-index.aspx.

Research Involving Human Subjects

If the thesis, dissertation, formal report or creative component involves the use of human subjects, the research project is governed by federal regulations that require review by the OSU Institutional Review Board (IRB). Approval to conduct the research must be obtained from the IRB before the research is started.
Failure to obtain IRB approval will result in the University's rejection of the thesis, dissertation, or formal report. While the Graduate College does not monitor the process resulting in a creative component, this does not negate the student's responsibility to obtain IRB approval if human subjects are involved in that creative activity.
This section is meant to be informational only and does not contain a complete description of the IRB review process. All of the forms and guidance for completing the application are available on the IRB website http://irb.vpr.okstate.edu/IRB/forms.aspx.

Graduation Clearance Process

At the time of enrollment for the last semester or summer session of work toward a degree, graduate students must complete and submit a Graduation Clearance form to the Graduate College before they can submit an Application for Diploma with the Office of the Registrar. The Graduation Clearance form is completed in conjunction with the academic adviser and confirms that a student has met or will meet by the end of the semester in question, all departmental and Graduate College requirements to earn the degree s/he is seeking. If these requirements are not met, the student must complete a new Graduation Clearance Form and Application for Diploma for a future semester. In order to allow opportunity for any class schedule changes necessitated by the review of the Graduation
The University holds one Graduate Commencement Ceremony at the close of the fall and spring semesters. Students who plan to meet graduation requirements at the close of the summer session are invited and encouraged to participate in the Graduate Commencement Ceremony at the close of the previous spring semester. Although attendance is not compulsory, the University encourages all candidates for advanced degrees to participate in the Graduate Commencement Ceremony. Candidates should also notify the Office of the Registrar of the address to which the diploma should be mailed.

**Graduate Programs Offered at OSU-Stillwater**

*Interdisciplinary Programs.* Oklahoma State University has a series of interdisciplinary graduate programs designed to provide students with a breadth of knowledge that is not ordinarily found in traditional programs. Descriptions are given below for the following interdisciplinary programs:

- Environmental Science (MS, PhD)
- Food Science (MS, PhD)
- Interdisciplinary Science (MS)
- Photonics (PhD)
- Plant Science (PhD)
- Telecommunications Management (PhD)

**Environmental Science**

Scott Stoddley, PhD—Director
Ken Ede, PhD—Associate Director; OSU-Tulsa
Cristina Giacomini Hughes—Program Coordinator

The Environmental Science Graduate Program (ESGP) is operated under the administration of the Graduate College at OSU. Due to its interdisciplinary nature, the ESGP attracts and produces students capable of thinking beyond a single discipline. Our unique approach to graduate education offers flexibility with locations in Stillwater and OSU-Tulsa. Our program is one of the oldest programs in the nation having been founded back in 1977. These ESGP graduates have gone on to be leaders in every facet of the environmental field. Our students are housed in one of many departments including Agricultural Economics, Economics, Leisure Studies, Plant & Soil Sciences, Natural Resources Ecology & Management, Biosystems and Agricultural Engineering, Geology, Geography, Political Science, Educational and School Psychology, School of Teaching and Curriculum Leadership, Sociology, and Zoology. There are over 128 faculty affiliated with the ESGP at OSU and over 70 of these have served as faculty advisors.

We offer our graduate students either a Master of Science or PhD degree. Each student has a unique opportunity to develop a degree plan that specifically addresses their individual career goals. Degree integrity is ensured through the guidance of the student's graduate advisor and committee.

**Programs of Study.** The breadth of offerings at OSU affords flexibility to the student interested in specific environmental career tracks. A student can design a unique degree plan to target a particular focus area that meets his or her professional goals or can follow structured plans recommended for specializations in:

- Environmental Management
- Environmental Management-Professional Science Masters (PSM)
- Environmental Education
- Environmental Policy and Conflict Management
- Environmental Sustainability
- Environmental Chemistry, Toxicology and Risk Assessment
- Water and Watershed Management

The student's graduate advisory committee assists the student in preparing a Plan of Study to assure focus, breadth and quality.

**Program Assessment Portfolio.** The ESGP assesses its curriculum each year to ensure that students are receiving the instruction needed to succeed in environmental careers. To accomplish this assessment, selected environmental faculty members review materials generated by students in the program. Each student must develop and maintain a collection of portfolio materials that demonstrate progress toward the degree. The portfolio must be submitted during the last semester of the student's enrollment.

**The Master of Science Degree.** To obtain an MS degree in environmental science, the student must complete a 36-credit hour course of study. This must be completed in 10 hours of core curriculum (ENVR 5303, ENVR 5123, three hours of research methods or statistics, three hours in natural science, and three hours in natural science). Each student must also either complete a six hour research thesis, a three hour research report, or a creative component. The six hour thesis credit hours can be taken as electives that focus on the student's area of particular interest. Students create their original Plans of Study with the assistance of their advisor and committee. It must be completed prior to the end of the second semester (excluding summer sessions) of enrollment.

For the MS degree with a specialization in Environmental Management, students must take 31 credit hours of science courses. In addition, they are required to take S503 Environmental Management Practicum and S510 Environmental Management Internship and Report. Students with this degree specialization are not required to meet the social science requirements.

**The Doctor of Philosophy Degree.** The Doctor of Philosophy degree requires a minimum of 60 credit hours beyond an MS degree. This includes a minimum of 36 to 45 hours of course work consisting of six hours of a skill component, ENVR 5303, ENVR 5123, and ENVR 6011. Course hours should reflect the biological, social, and physical aspects of the concentration area. Research and courses should reflect the student's professional goals. A dissertation (ENVR 6101) is required and consists of a minimum of 15 credit hours (At least 75 percent of the courses for the PhD degree must be at the 5000 level or above), including dissertation research hours. The student must successfully pass a comprehensive oral qualifying exam after course work is completed. Students create their original Plans of Study with the assistance of their advisor and committee. It must be completed prior to the end of the third semester (excluding summer sessions) of enrollment.

**Admission.** Each student seeking admission to the Environmental Science Graduate Program must submit the following materials: (1) An official Graduate College application for admission and a nonrefundable fee, (2) Transcripts for all college level courses, (3) A statement of career goals, including competencies to be gained during program enrollment, (4) Three letters of recommendation discussing the student's potential for graduate work, and (5) GRE test scores (use institution code 6546 and department code 0502). International students must also earn a TOEFL score of at least 90/6/777/PBT and submit a financial affidavit for the amount required by OSU. To be admitted, applicants must have earned a college grade point average of 3.00 or a 4.00 scale. Students are required to have completed college-level courses that address the fundamentals and principles of chemistry, biology, ecology, and algebra prior to admission.

All applications to the ESGP should be submitted at least 60 days before the opening of the semester in which they wish to enroll. International students should supply all application materials by March 1st for summer enrollment, June 1st for fall enrollment, and October 15th for spring enrollment.

It is recommended that students identify an advisor prior to admission to the program. The ESGP Program Coordinator will assist the student with this process. If the student is unable to identify a permanent advisor, then a temporary advisor may be appointed. However, the student must identify a permanent advisor prior to completion of the ninth credit hour in order to be able to enroll in the following semester.

**Financial Assistance.** Graduate research assistantships and other funding opportunities are often available through affiliated environmental science faculty members. The initial application should specify the student's interest in an assistantship.

Additional information about the environmental science graduate program can be found at esgp.okstate.edu.

**Food Science**

William McGlynn, PhD—Program Coordinator

The following departments participate in the food science program: Agricultural Economics, Animal Science, Biochemistry and Molecular Biology, Biosystems and Agricultural Engineering, Horticulture, Plant and Soil Science, and Nutritional Sciences.

Food science is an interdisciplinary graduate program designed to provide students with the opportunity to acquire basic knowledge of the food industry encompassing the biological and physical sciences. The increasing complexity of the problems involved in the production, processing, and utilization of food products has increased fundamental knowledge to solve these problems. There is a great demand for personnel taken as electives that focus on the student's area of interest. Students majoring in other curricula may qualify by remedying specific undergraduate deficiencies recognized by the student's
graduate committee. A student enrolling in a degree program must have been accepted by an adviser prior to official admission. The GRE is required for admission. Three letters of reference are also required.

International Studies
Joel Jenswold, PhD—Director of Academic Programs
Donna Birchler—Program Coordinator

Leaders in today’s global community require a broad international understanding as well as specific knowledge within a discipline. For this reason, the School of International Studies offers three multi-disciplinary graduate programs: the Master of Science in International Studies, the Master’s International Program (MIP), and the Graduate Certificate in International Studies. The MIP combines the MS in International Studies with service in the Peace Corps. For more information contact i-study@okstate.edu.

Master of Science in International Studies. Students complete 33 credit hours, including four core courses, four - five courses in a designated focus area, and two - three elective courses. Students are encouraged to participate in an international internship or other international experience. MS students complete their degree with either a thesis or a creative component.

Master’s International Program (MIP). This program provides the opportunity to incorporate Peace Corps service into the MS in International Studies degree plan. Candidates may receive up to nine credit hours in the SIS master’s program in connection with their Peace Corps service.

Certificate in Global Issues. Taken on its own or in conjunction with another graduate program, students can receive a graduate certificate by taking 15 credit hours in International Studies. Three of the four core courses and two additional courses are selected from a focus area.

More than 150 faculty members affiliated with the School of International Studies (SIS) come from every academic college at Oklahoma State University. Students select courses from a rich variety of subjects taught by nationally and internationally recognized scholars. Besides the interdisciplinary core courses, students concentrate in one of five focus areas:

- International Trade and Development
- International Business and Economic Relations
- International Human Relations, Society and Education
- Preservation of Environmental and Ecological Resources
- Cultural Heritage and Tourism Development

The SIS graduate programs enroll approximately 80 students from the U.S. and 20 different countries. This dynamic group is equally divided between men and women and between U.S. and international students. Graduates become part of a global network of friends and colleagues positioned to meet tomorrow’s challenges.

Interdisciplinary Science
Jean Van Delinder, PhD—General Program Coordinator

The Master of Science in Interdisciplinary Sciences is for students who wish to increase their competence in a particular thematic area by taking a series of courses in several disciplines. This multidisciplinary approach provides educational opportunities leading to a variety of careers. Interdisciplinary sciences consist of no fewer than three separate fields of study with at least six hours in each field. No more than 15 hours may be taken in any one area. The advisory committee will assist the student in formulating the Plan of Study.

Admission Requirements. An undergraduate grade-point average of 3.00 is required for unqualified admission. Students with a grade-point average between 2.50 and 3.00 may be admitted on a probationary basis. Applications to the program should include:

1. a cover letter indicating the personal goals and professional objectives to be obtained from the program;
2. transcripts from all schools previously attended;
3. three letters of recommendation from persons who can describe abilities, interest, and motivation as a student;
4. a proposed course of study with an endorsement from an OSU faculty adviser.

Particular courses are not specified for the degree; the advisory committee can assist in selecting appropriate courses. The course of study must include at least 21 credit hours at the graduate level (5000 or above). Up to nine graduate hours can be transferred from a regionally-accredited graduate program with consent of the advisory committee. The student chooses any of the three master’s degree plans:

1. a 30-hour plan, including a six-hour research thesis;
2. a 34-hour plan, including a two-credit hour formal report; or
3. a 36-hour plan with a well-defined, creative and scholarly component.

Photonics
Al Mohammad, PhD; Rama Ramakumar, PhD—Program Coordinators

Oklahoma State University offers a multidisciplinary program leading to the PhD degree in photonics. The program draws on the faculties of the departments of Physics and Electrical and Computer Engineering. A student typically chooses either of these as his or her "home department" on the basis of academic background and research interests. A multidisciplinary program of course work is tailored to the goals of each individual student mentored by a chosen faculty member from the home department and guided by the advisory committee. The PhD program provides a biophotonics specialization with faculty from the departments of Chemistry or Microbiology and Molecular Chemistry, or the College of Veterinary Medicine serving as research advisers. For information regarding the Photonics option in either the MS in Physics or the PhD in Electrical and Computer Engineering, see the relevant departmental section of the Catalog.

PhD Program Requirements. A total of 90 credit hours beyond the BS (60 beyond the MS) degree are required for the PhD in photonics. All students must form a preliminary advisory committee to guide them initially in the photonic PhD program. Eventually a student chooses a permanent research adviser who chairs the graduate research committee. Course work is taken from the basic and advanced courses offered by the Departments of Physics and Electrical and Computer Engineering. Courses from other departments may also be recommended by the graduate research committee. In addition, students are required to take two or more photonics tutorials, offered by faculty in their research lab, emphasizing particular research problems and techniques. A preliminary exam is administered usually during the student’s second year in the PhD program. Admission to PhD candidacy follows the successful completion of the qualifying exam. The focus of the PhD program is the completion of a faculty directed research project and the defense of the resulting dissertation. A detailed Plan of Study specific to the research specialization chosen is formulated by the student in consultation with the advisory committee.

Research Opportunities. The faculty emphasizes both basic and applied interdisciplinary research. To accomplish this, in addition to a myriad of state-of-the-art laser systems and computational facilities, the OSU campus houses two linear (SBE) growth and analysis and unique opto-electronic THz systems. Current research programs include quantum optics, quantum cryptography, "whispering gallery modes," experimental and calculation programs in nanostructured materials, optical fiber communications and optical circuits for computing as well as high speed optoelectronic applications to fundamental and applied problems in the THz frequency range. Other investigations center on the preparation and characterization of specialty-doped insulators and semiconductors for use as lasing materials, non-linear optical crystals for data storage and holographic applications, and photonic-based chemical, physical and biochemical environmental sensors. Research programs in the biomedical applications of lasers at both the basic research and clinical application levels seek to understand the interaction of light with biological materials at the tissue, cellular and molecular levels.

Admission Requirements. Students with a BS degree in physics, electrical engineering, chemistry (or related fields) are welcome to apply to the PhD photonics program. No additional tests (such as the GRE) are required, but such scores may be submitted in support of an application. A TOEFL score of at least 600 is required of international students.

Applications should include:

a. a cover letter indicating the program, the department of specialization and whether the student wishes to be considered by that department for a fellowship or teaching assistantship;

b. a personal statement of interests and goals, noting especially how they relate to the degree in photonics;

c. transcripts of all previous academic work (an unofficial transcript will suffice for the application; official transcripts are required by the Graduate College after admission.)

d. the names and email addresses of three persons who have been requested to submit letters of reference.

Financial Aid. Most students entering the photonics programs are offered a graduate teaching assistantship in their home department. A student pursuing an original research project may receive support as a graduate research assistant (RA) through grants and contracts to the individual faculty member who serves as the adviser.

Plant Science
William Henley, PhD—Program Coordinator

Solutions to current problems in plant science often require integration of knowledge from a number of disciplines. The Plant Science program at Oklahoma State University provides the opportunity for the exceptional PhD student to develop an academic program tailored to his or her individual interests and needs. Faculty participating in this program comes from the departments of Biochemistry and Molecular Biology, Botany, Entomology and Plant Pathology, Forestry, Horticulture and Landscape Architecture, Microbiology and Molecular Genetics, and Plant and Soil Science. The multidisciplinary nature of this program allows students to experience many facets of plant science and affords them the flexibility to seek employment in a variety of settings. Students and their graduate committees, develop a program in one of three specialization areas (cellular and molecular, organismal or ecological), but are expected to develop a
sound foundation across all disciplines of plant study.

Admission Requirements. Application for admission includes a statement defining plant science interests, a resume, three letters of reference, an abstract of the Master of Science thesis (if applicable), GRE scores (the Advanced Biology GRE is also desirable), and a minimum TOEFL of 86/570/PRBT. A student must be accepted by a faculty adviser prior to official admission.

Financial Assistance. Students seeking financial assistance should inquire directly to the department(s) and faculty of interest within the plant science program.

Telecommunications Management
Jan Analia, Ph.D.—Program Director
The goal of the Master of Science degree in telecommunications management at Oklahoma State University is to prepare students with the skills necessary to manage data, video, and voice communications with telecommunication technologies and to use those technologies to manage other areas. This program is offered through traditional means to Stillwater and Tulsa students as well as through distance learning and Internet technologies to students at remote locations.

The telecommunications management program draws on the combined expertise of three OSU colleges—the College of Arts and Sciences; Spears School of Business; and the College of Engineering, Architecture and Technology. This allows students to achieve a depth of knowledge in one discipline, while developing broad knowledge in business, technical, and communication disciplines. It is also possible for students to emphasize information assurance through the Center for Telecommunications and Network Security and to earn multiple related government certifications.

This program prepares graduates for managing voice, video and data technologies in a competitive environment. Graduates of this program are likely to be employed by providers or users of telecommunications and network technologies.

Telecommunications Management Curriculum. The program curriculum consists of 32-33 credit hours, including seven core courses, one practicum, and three electives. Students may choose either a part-time or full-time sequence. Full-time students can complete the program in one and one-half years while part-time students may be able to complete it in two years.

Admission Requirements. In addition to the OSU Graduate College standard requirements, the telecommunications management program admissions committee will review students’ letters of recommendation, GMAT or GRE scores, previous academic performance, and telecommunications experience.

Program information can be accessed at spears.okstate.edu/graduate/mstm.

Graduate Minors

Graduate minors offer students the opportunity to pursue coursework outside, or ancillary to, the requirements for the degree earned. Minors may not be earned independently of a degree granted by OSU. OSU offers graduate minors in the following areas:

- Agribusiness
- Agricultural Economics
- Entomology
- Plant Pathology
- Statistics

Basic Requirements: A graduate minor must include between nine and eighteen hours, inclusive, of coursework eligible for graduate credit. At least two-thirds of the applicable coursework must be at the 5000-level or above.

Transfer of Courses: No more than one-third of the credit for the minor may be earned through transfer credit of courses taken at other institutions, with the approval of the coordinator of the minor and the dean of the Graduate College. Transfer credit will only be considered if it was earned when the student was post-baccalaureate (i.e., after earning a bachelor’s degree) at another accredited institution. All courses used as transfer credit must have a grade of “B” or better. Grades earned in courses transferred to Oklahoma State University will not be used in calculating the cumulative GPA.

Academic Standing. A grade-point average of “B” (3.00) is required on courses applicable to a graduate minor. No grade lower than a “C” may be used as part of the minimum requirements for the minor. Individual minors may have more stringent requirements.

Plan of Study and Minor Completion Procedures. Graduate students can declare a minor by entering it in the appropriate section of an original or revised Plan of Study submitted to the Graduate College prior to conferment of the degree. The pursuit of graduate minors is not denoted on the academic transcript while in progress. Graduate students can file for minor completion in the semester that the required courses for that minor will be finished. At that time, the graduate student should ask the coordinator for that minor area to submit a memorandum to the Graduate College certifying the completion of the minor requirements and listing the courses required for the minor. A notation of the minor will be added to the student’s transcript after the conferment of a degree. The courses required for a graduate minor may be included on a Plan of Study for any graduate degree or they may be in addition to the degree requirements, depending on the overlap between the minor and the degree Plan of Study. However, the graduate minor must be earned in an academic field other than the student’s graduate program or degree option (for example, a graduate student who is degree-seeking in economics could not receive a graduate minor in economics).

Time Limits. Requirements for the graduate minor not completed at the time of conferment of the degree must be completed within two years of degree conferral. All graduate courses used to complete the minor must have been taken within ten years prior to the date of completion of the graduate minor requirements. A notation of the graduate minor completed after degree conferral will be added to the student’s transcript by the Registrar’s office indicating the term in which the minor requirements were completed.

Graduate Certificate Programs

Graduate certificate programs offer students the opportunity for focused study of a body of knowledge at the graduate level, leading to the award of an academic credential that can be earned in a relatively short time. Graduate certificate programs can serve both as the core for more advanced study leading to the master’s or doctoral degree, and as an opportunity to pursue specialized education that assists the individual in an established career or provides opportunity for career advancement. OSU offers graduate certificate programs in the following areas:

- Aerospace Security
- Bioenergy and Sustainable Technology
- Bioinformatics
- Business Data Mining
- Business Sustainability
- Engineering & Technology Management
- Entrepreneurship
- Gerontology
- Global Issues
- Grassland Management
- Information Assurance
- Interdisciplinary Toxicology
- Marketing Analytics
- Non-Profit Management
- Online Teaching
- Teaching English to Speakers of Other Languages

Admission to a Graduate Certificate Program. Any student admitted to the Graduate College may apply for admission to a graduate certificate program. Some certificate programs may have additional requirements, such as official scores on a standardized test, letters of recommendation, etc. Contact the appropriate graduate program for specifics.

Basic Requirements. A graduate certificate requires completion of 12-21 credit hours of course work eligible for graduate credit, of which at least two-thirds must be at the 5000 level or above. Specific certificate programs may have more stringent requirements.

Transfer of Courses. With the approval of the graduate program and the Graduate College, up to three hours of graduate-level credit from another institution may be used toward certificate requirements. The GPA must be at least 3.0 on any transfer credit.

Academic Standing. A grade-point average of “B” (3.0) is required on courses applicable to a graduate certificate. No grade lower than a “C” may be used as part of the minimum requirements for the certificate. Individual certificate programs may have more stringent requirements.

Plan of Study and Certificate Completion Procedures. Upon application to a graduate certificate program, a student should complete a Plan of Study listing the courses intended to be used in earning the certificate. This plan must be approved by the graduate program and the Graduate College prior to recording the credential on the student’s academic record. During the semester of anticipated certificate completion, the student must complete an Application for Certificate Completion, which is submitted to the Office of the Registrar. This action will cause the graduate certificate to be recorded on the official transcript and a certificate will be printed, provided all requirements have been met.

Master’s Degree Programs

Abbreviations:

- MA  Master of Arts
- MAG  Master of Agriculture
- MAT  Master of Athletic Training
- MBA  Master of Business Administration
- MFA  Master of Fine Arts
- MFSA  Master of Forensic Science Administration
- MM  Master of Music
- MS  Master of Science
Accounting, MS  
Agricultural Communications, MS  
Agricultural Economics, MS  
Agricultural Education, MS  
Animal Science, MS  
Art History, MA  
Athletic Training, MAT  
Aviation and Space, MS  
Biochemistry and Molecular Biology, MS  
Biomedical Sciences, MS  
Biosystems and Agricultural Engineering, MS  
Botany, MS  
Business Administration, MBA  
Chemical Engineering, MS  
Chemistry, MS  
Civil Engineering, MS  
Communication Sciences and Disorders, MS  
Computer Science, MS  
Counseling, MS (Community Counseling; School Counseling)  
Creative Writing, MFA  
Design, Housing and Merchandising, MS (Apparel Design and Production; Interior Design, Merchandising)  
Economics, MS  
Educational Leadership Studies, MS (College Student Development; Higher Education; School Administration)  
Educational Psychology, MS (Educational Psychology; Educational Research and Evaluation; School Psychometrics)  
Educational Technology, MS (Educational Technology - School Library Media)  
Electrical Engineering, MS (Optics and Photonics, Control Systems)  
Engineering and Technology Management, MS  
English, MA  
Entomology and Plant Pathology, MS (Entomology; Plant Pathology)  
Entrepreneurship, MS  
Environmental Engineering, MS  
Environmental Science, MS (Environmental Management Professional Science Master's)  
Fire and Emergency Management Administration, MS  
Food Science, MS  
Forensic Science, MS (Forensic Science Administration; Forensic Document Examination)  
General Agriculture, MAg (Agribusiness; Agricultural Economics; Agricultural Education; Agricultural Leadership; Animal Science; Entomology; Horticulture; Natural Resource Ecology and Management; Plant Pathology; Plant Science; Soil Science)  
Geography, MS  
Geology, MS  
Health and Human Performance, MS (Applied Exercise Science; Athletic Training; Health Promotions; Physical Education)  
Health Care Administration, MS  
History, MA  
Horticulture, MS  
Hospitality Administration, MS  
Human Development and Family Science, MS (Child and Family Services; Developmental and Family Sciences; Early Childhood Education; Gerontology; Marriage & Family Therapy)  
Human Sciences, MS (Family Financial Planning)  
Industrial Engineering and Management, MS  
Interdisciplinary Science, MS  
International Studies, MS  
Leisure Studies, MS  
Management Information Systems, MS  
Mass Communications, MS  
Mathematics, MS  
Mechanical and Aerospace Engineering, MS (Unmanned Aerial Systems)  
Microbiology, Cell and Molecular Biology, MS  
Music, MM (Applied Music; Conducting)  
Natural Resource Ecology and Management, MS (Fisheries and Aquatic Ecology; Forest Resources; Rangeland Ecology and Management; Wildlife Ecology and Management)  
Nutritional Sciences, MS (Dietetics; Nutrition)  
Philosophy, MA  
Physics, MS (Optics and Photonics, Medical Physics)  
Plant and Soil Sciences, MS  
Political Science, MA  
Psychology, MS  
Quantitative Financial Economics, MS  
Sociology, MS  
Statistics, MS  
Teaching, Learning and Leadership, MS (Curriculum and Leadership Studies; Elementary/Middle/Secondary Education/K-12 Education; Mathematics/Science Education; Occupational Educational Studies; Reading and Literacy; Secondary Education for Teachers Non-traditionally Certified; Special Education)  
Telecommunications Management, MS  
Theatre, MA  
Veterinary Biomedical Sciences, MS  
Zoology, MS

**Basic Requirements.** The master's degree may be earned by one of three plans:

Plan I—with thesis, 30 credit hours, consisting of 24 hours of course work and six hours of research with a grade of "SR;"

Plan II—with report, 32 credit hours, consisting of 30 hours of course work and two hours of research with a grade of "SR;"

Plan III—with no thesis or report, 32 credit hours of course work, including the creative component. The creative component may be a special report, an annotated bibliography, a project in research or design, or other creative activity, as designated by the advisory committee. Courses numbered 5000 or 6000 may not be used on a Plan of Study involving a creative component.

The numbers of credits specified for each plan are minimums set by the Graduate College. Graduate program requirements may exceed these minimums.

The graduate program, with the approval of the dean of the Graduate College, decides which alternatives are open to the students. Some graduate programs may require a minimum number of credit hours of upper-division and graduate courses in the major field, including courses taken as an undergraduate. A student who holds a DVM, MD, DO, DDS, LLB, JD, or equivalent professional degree may receive up to nine hours credit toward a master's degree, subject to the recommendation of the advisory committee and the approval of the dean of the Graduate College. However, a student receiving this credit may not transfer additional hours to OSU from other graduate programs.

**Residence Requirements.** Candidates for a master's degree must complete a minimum of 21 semester credit hours from OSU if they follow Plan I, or 23 semester credit hours if they follow Plan II or III. Nine semester credit hours of the 30 or 32 required for the degree may be completed by graduate courses taken at another accredited college or university.

**Advisory Committee.** Upon recommendation of the graduate program and approval of the Graduate dean, an advisory committee of no fewer than three voting members will be appointed. The advisory committee must include a minimum of three members of the Graduate Faculty. The chair of the committee need not necessarily serve as the student's research adviser, but must hold an OSU faculty appointment and have familiarity with the academic requirements of the degree sought. To view the roles and responsibilities associated with members of advisory committees, go to http://gradcollege.okstate.edu/faculty-and-staff-resources.

**Level of Courses Applied to Graduate Degree.** Graduate students must complete no fewer than 21 semester credit hours of 5000- and 6000-level courses through OSU as presented on the Plan of Study to meet requirements for the master's degree.

**Plan of Study.** The Plan of Study for the degree must be submitted online to the Graduate College prior to completion of the second semester of enrollment for a master's program. The student should develop the Plan of Study with the advisor using the online Plan of Study application (http://planofstudy.okstate.edu). The online submission request requires approval by the advisory committee and the student’s graduate program with final approval by the Graduate College. The Plan of Study is subject to modification. All changes must have the approval of the adviser and the student’s graduate program, and a final Plan of Study incorporating all changes should be submitted to the Graduate College by the posted deadline.

Graduate credit, up to a maximum of nine hours, used to obtain one master's degree may, with the approval of the advisory committee, be counted toward completion of another master's degree.

**Major Subject or Field.** A major field of study may cross graduate program lines with approval of the graduate program and dean of the Graduate College.

To receive a master's degree, the student must have completed in the major field of study a minimum of 18 semester credit hours above the prerequisites required for graduate work in that subject or field.
Language Requirements. A candidate for a master's degree may be required to demonstrate a reading knowledge of a modern foreign language. Any such requirement of the graduate program included in the Plan of Study and is noted at the time the preliminary plan is approved by the student's adviser.

A foreign language requirement for a master's degree may be met either by examination or by college credit, according to individual graduate program requirement.

Written Examinations. Some graduate programs require a written examination covering the major and minor fields. It is usually taken before the thesis or report has been completed. Arrangements for taking the examination should be made with the graduate program at least three weeks in advance. The written examination must be passed before a final examination is scheduled, if a thesis or report option is used.

A student who fails all or part of the written examination should consult the chair of the examination committee to find out what must be done before taking another examination.

Thesis. Any student working on a thesis should obtain a copy of the Graduate College Thesis/Dissertation Handbook available from the Graduate College at http://gradcollege.okstate.edu/tdg. A thesis must conform to the format specifications set forth in this document. The style of the document is to be determined by the advisory committee and should be reflective of publications in the student's discipline. Any graduate student is writing a thesis must attend a format workshop prior to submission of their final copy. The dates for the workshops are on the Graduate Calendar and a webinar version is available.

It is strongly recommended that a graduate student submit complete copies of his or her thesis to the committee members at least two weeks prior to the defense date, that the defense presentation be publicized, and that the thesis defense occur on a date during the normal academic semesters and sessions. Graduate programs may have additional or more restrictive requirements for thesis defenses.

The student should submit an electronic copy of the final thesis through the OSU electronic submission website. Directions for the website submission are given to the student when he or she submits the Oral Defense Results Form to the Graduate College. In addition, the student must submit to the Graduate College (a) one paper copy of the approval page with all original signatures and the student's name and eight digit CWID number entered at the top of the page; and (b) one abstract. Copies must be received no later than the stated final copy submission deadline date (see the Calendar at the front of the "Graduate College" section for dates).

Report. The student must submit to the Graduate College the Formal Report Approval form.

Final Examination. If the thesis or report option is used, the student should arrange with the major department for the final examination after the format review copy of the thesis or report has been filed in the Graduate College and distributed as described in the preceding section. The final examination may be oral or written or both.

The final examination is primarily a defense of the thesis or report. If the defense is judged inadequate, a decision on whether to permit re-examination will be made by the advisory committee. Examinations are open to all members of the Graduate Faculty and may be attended by anyone else who obtains the permission of the advisory committee.

The committee will notify the Graduate College immediately of results of the final examination. Following satisfactory completion of the final examination, the candidate will make changes in the thesis or report as required by the committee and by the Graduate College, and submit it in final form signed by the committee to the Graduate College by the semester deadline.

A student who fails to pass either a written or oral final examination should consult the chair of the examining committee. Another examination cannot be given for two months after a failure, and a department may limit the number of times that the examination may be repeated.

Specialist in Education (EdS) Degree Program

Education, EdS (School Psychology)

The Specialist in Education degree is conferred as an appropriate recognition of achievement as evidenced by:

1. Successful professional performance in the area of the student's specialization.
2. Satisfactory completion of a program of graduate study of approximately two academic years.
3. Satisfactory performance on examinations designed to reveal the student's understanding of the field of specialization and its relation to other areas.
4. Preparation of a thesis dealing with some aspect of concern to the student's profession and its defense before a committee of the Graduate Faculty.

Temporary Adviser. At the beginning of a student's Specialist in Education program, the school head will designate a member of the Graduate Faculty to serve as temporary adviser to the student. The temporary adviser will guide the student in the selection of courses for the first semester.

Advisory Committee. Upon recommendation of the school head or the graduate committee of the school, an advisory committee of no fewer than three voting members will be appointed by the dean of the Graduate College. At least one member of the advisory committee must be from a school or department outside the student’s major field of study. This committee (1) conducts the preliminary examination and conference, (2) approves the proposed Plan of Study, (3) supervises the student's progress in the program, (4) supervises the research, and (5) arranges for and conducts the final examination. The chair of the committee need not necessarily serve as the student's research adviser, but must hold an OSU faculty appointment and have familiarity with the academic requirements of the degree sought. To view the roles and responsibilities associated with members of advisory committees, go to http://gradcollege.okstate.edu/faculty-and-staff-resources.

Plan of Study. The original Plan of Study for the degree must be submitted to the Graduate College prior to the end of the second semester (excluding summer sessions) of enrollment for a specialist in education program. The student should develop the Plan of Study with the advisor using the online Plan of Study application (https://planstudy.okstate.edu). The online submission requires approval by the advisory committee and the student's graduate program with final approval by the Graduate College.

The Plan of Study may be modified with the approval of the adviser. A final Plan of Study incorporating all changes should be filed in the Graduate College by the eighth week of the semester in which the degree is to be conferred.

Credit-hour Requirements. A minimum of 60 credit hours beyond the bachelor’s degree or 33 credit hours beyond the master’s degree are required for the Specialist in Education degree. This may include as many as 10 credit hours for the practicum study and accompanying report.

Character of Work. The satisfactory completion of course work (see "General Regulations") is only one requirement for receiving the degree. The student must also: (1) pass a qualifying examination, (2) conduct an appropriate study of education, (3) show qualities of professional leadership and (4) pass a final examination.

Residence Requirements. While the Graduate College does not have a specific residence requirement that applies to all graduate programs, departments may require a period of time in residence for students enrolled in departmental graduate programs. Departments must inform students of any residence requirements upon their admission to departmental graduate programs. No more than nine hours may be transferred from another university.

Qualifying Examination. A qualifying examination is required of all candidates for the Specialist in Education degree. The nature of this exam is determined within each specialization.

Credit Toward an EdD or a PhD. A student holding an EdS may have the credit hour requirements for a PhD or EdD reduced to 30 hours subject to recommendation by the advisory committee and approval of the dean of the Graduate College. However, all of the remaining 30 hours toward the doctoral degree must be taken at the 5000 or 6000 level and all must be taken at OSU.

Doctor of Education (EdD) Degree Programs

Applied Educational Studies (Aviation and Space Education; College Interdisciplinary Studies)

Higher Education

School Administration

The degree of Doctor of Education is a professional degree conferred in recognition of outstanding ability as an educator in some special field or fields as shown by: (1) satisfactory completion of a program of study; (2) passing examinations showing an understanding of the field of specialization and its relation to allied subjects; (3) the preparation of a dissertation demonstrating ability to approach problems with a high degree of originality and independence; and (4) passing an examination covering the dissertation and related fields.

Basic Requirements. The Doctor of Education degree requires a minimum of 90 semester credit hours beyond the bachelor's degree, or a minimum of 60 semester credit hours beyond the master's degree in a related discipline. Courses at the 5000 and 6000 level should make up at least 75 percent of the Plan of Study and must include ten hours, with a grade of "S," for the doctoral dissertation. Students may use 90 hours beyond the bachelor's degree as a degree total only if admitted directly into the doctoral program from the bachelor's degree.

A student who holds a DVM, MD, DO, DDS, LLB, JD, or equivalent professional degree may also have the minimum credit hour requirement reduced to 60 hours, subject to the recommendation of their advisory committee and the approval of the dean of the Graduate College. A student may receive only one 30-hour credit reduction in the EdD requirement regardless of the number of master's or professional degrees that he or she holds.

Temporary Adviser. At the beginning of a student's doctoral program, the school head will designate a member of the Graduate Faculty to serve as temporary adviser to the student. The temporary adviser will guide the student in the selection of courses for the first semester.
Advisory Committee. Upon recommendation of the head of the major department and approval of the Graduate dean, an advisory committee of no fewer than four voting members will be appointed. The duties of the advisory committee consist of (1) advising the student, (2) assisting the student in preparing a Plan of Study, (3) assisting in planning and conducting the research, (4) supervising the writing of the dissertation, and (5) conducting the dissertation defense. The chair of the committee need not necessarily serve as the student's research adviser, but must hold an OSU faculty appointment, be a member of the Graduate Faculty with doctoral chairing privileges, and have familiarity with the academic requirements of the degree sought. Each doctoral committee must have at least one member of the Graduate Faculty from outside the student's major department. To view the roles and responsibilities associated with members of advisory committees, go to http://gradcollege.okstate.edu/faculty-and-staff-resources.

The student should consult the members of the advisory committee frequently and keep them informed on the progress of his or her work.

Preliminary Conference. As soon as the student is notified that an advisory committee has been appointed, the student should arrange with the chair for a conference with the committee. During the conference, the preparation and qualifications of the student for graduate work will be discussed and appropriate plans made for future study.

Plan of Study. The student should develop the Plan of Study with the advisor and committee using the online Plan of Study application (http://planofstudy.okstate.edu/). The online submission requires approval by the advisory committee and the student's graduate program with final approval by the Graduate College.

Because the acceptance of work that the student desires to use toward the degree rests with the advisory committee, it is important to plan a complete program and have it approved by the dean of the Graduate College as soon as possible.

The original Plan of Study must be submitted to the Graduate College prior to the end of the third semester (excluding summer sessions) of enrollment in the doctoral program.

The Plan must include all the acceptable graduate work that has been completed and all that will be taken for the degree. The plan should include (1) at least 75 percent of courses taken at the 5000-6000 level, (2) a minimum of 60 hours beyond the master's degree or 30 hours beyond the EdS and (3) at least 10 hours of dissertation credit. Courses from a master's degree or EdS are not listed on the doctoral Plan of Study.

Credit for all courses on a graduate Plan of Study must have been awarded within 10 years of completion of all degree requirements.

Changes in the Plan of Study can be made with the approval of the advisory committee and the dean of the Graduate College. A final, accurate and approved plan must be filed by eighth week of the semester in which the degree is to be conferred.

Character of Work. The satisfactory completion of course work (see "General Regulations") is only one requirement for receiving the degree. The student must also: (1) pass a qualifying examination, (2) prepare an acceptable dissertation, (3) demonstrate the ability to do independent study, (4) pass a defense of dissertation and (5) comply with any other requirements of the major department.

Residence Requirements. A minimum of 30 credit hours must be taken at OSU. While the Graduate College does not have a specific residence requirement that applies to all graduate programs, departments may require a period of time in residence for students enrolled in departmental graduate programs. Programs must inform students of any residence requirements upon their admission to graduate programs.

Language and Research Instruments Proficiency. All candidates will be expected to have a command of those instruments necessary in the study of educational problems. The doctoral advisory committee of each candidate may require evidence of proficiency in one or more foreign languages, educational research, statistics and computer usage.

Admission to Doctoral Candidacy. Admission to doctoral candidacy marks the transition into the research phase of a doctoral degree and indicates agreement that the student has demonstrated the ability to do acceptable graduate work and that satisfactory progress has been made toward a degree. Consideration for candidacy requires the presentation of a written research proposal for doctoral research to the doctoral advisory committee, who will assess the proposal and offer the student pertinent counsel, advice and feedback. The approval of the research proposal by the advisory committee is the basic requirement for admission to doctoral candidacy; individual programs will normally impose additional requirements, such as the successful completion of oral and/or written comprehensive or qualifying examinations. These additional requirements may occur in conjunction with the presentation of the research proposal, or they may occur at different times within the course of doctoral study. Admission to doctoral candidacy is conferred with the approval of the dean of the Graduate College, on behalf of the Graduate Council, upon the recommendation of the program faculty. It is the responsibility of the chair of the advisory committee to notify the Graduate College when admission to candidacy is granted by submitting the Admission to Doctoral Candidacy form.

Dissertation Hours Taken as a Doctoral Candidate. Admission to candidacy must occur at least six months prior to the date of the final dissertation defense. Since admission to candidacy may occur at various times related to the academic calendar, the student will need to be admitted to candidacy early in the fall semester to be eligible to schedule their final dissertation defense and graduate in the spring; very early in the spring semester for summer graduation; and extremely early in the summer session for fall graduation. (See the Graduate College Calendar for term-specific dates.)

Dissertation. A dissertation is required of each candidate for the Doctor of Education degree. The dissertation has three principal functions: (1) training in research, (2) promoting professional growth, and (3) contributing to professional knowledge in education. Not every dissertation will be expected to serve these three functions in the same way or to the same extent. The format specifications, procedures and regulations for the dissertation are the same as for the PhD. The EdD candidate should refer to the "Doctor of Philosophy" section on dissertations and submission procedures through the Graduate College. The style of the document is to be determined by the advisory committee and should be reflective of publications in the student's discipline.

Any graduate student is writing a thesis must attend a format workshop prior to submission of their final copy. The dates for the workshops are on the Graduate Calendar and a webinar version is available.

Doctor of Philosophy (PhD) Degree Programs
- Agricultural Economics
- Agricultural Education
- Animal Science
- Biochemistry and Molecular Biology
- Biomedical Sciences
- Biosystems and Agricultural Engineering
- Business Administration (Accounting; Entrepreneurship; Executive Research; Finance; Management; Management Science and Information Systems; Marketing)
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science
- Crop Science
- Economics
- Education (Curriculum Studies; Educational Technology; Occupational Education Studies; Professional Education Studies; Social Foundations of Education)
- Educational Leadership and Policy Studies (Educational Administration; Higher Education)
- Educational Psychology (Counseling Psychology; Educational Psychology; Research and Evaluation; School Psychology)
- Electrical Engineering
- English
- Entomology
- Environmental Science
- Fire and Emergency Management Administration
- Food Science
- Geography
- Geology
- Health, Leisure and Human Performance (Health and Human Performance; Leisure Studies)
- History
- Human Sciences (Design, Housing and Merchandising; Hospitality Administration; Human Development and Family Science; Nutritional Sciences)
- Industrial Engineering and Management
- Mathematics
- Mechanical and Aerospace Engineering (Unmanned Aerial Systems)
- Microbiology, Cell and Molecular Biology
- Natural Resource Ecology and Management (Fisheries and Aquatic Ecology; Forest Resources; Rangeland Ecology and Management; Wildlife Ecology and Management)
- Photonics
- Physics
- Plant Pathology
- Plant Science
- Psychology (Clinical; Life Span Developmental Psychology)
- Sociology
- Soil Science
- Statistics
- Veterinary Biomedical Sciences
- Zoology
The Doctor of Philosophy degree is granted in recognition of high achievement in scholarship and independent investigation. The student must prove his or her acceptability by (1) successfully completing a series of courses comprising a Plan of Study; (2) passing various examinations demonstrating academic competence; (3) carrying out a research program under supervision and preparing an acceptable dissertation; and (4) demonstrating initiative, creative intelligence, and ability to plan and carry out research in his or her chosen field.

**Basic Requirements.** The Doctor of Philosophy degree requires a minimum of 90 credit hours beyond the bachelor's degree, or a minimum of 60 credit hours beyond the master's degree in a related discipline. These hours must include a minimum of 15 (maximum of 60) dissertation hours (6000) with a grade of "SR" for the 90 hour doctoral degree. Only students admitted directly into the doctoral program from the bachelor's degree may use more than 45 dissertation (6000) credits toward a doctoral degree.

A student who holds a DVM, MD, DO, DDS, LLB, JD, or equivalent professional degree may also have the minimum credit hour requirement reduced to 60 hours, subject to the recommendation of their advisory committee and the approval of the dean of the Graduate College. A student may only receive one 30-hour credit reduction in the PhD requirements regardless of the number of master's or professional degrees that he or she holds.

**Temporary Adviser.** At the beginning of a student’s doctoral program, the graduate program will designate a member of the Graduate Faculty to serve as temporary adviser to the student. The temporary adviser will assist the student in the early selection of courses. Often, it is the graduate coordinator who serves as the temporary adviser.

**Advisory Committee.** Upon recommendation of the graduate program and approval of the dean of the Graduate College, an advisory committee of no fewer than four voting members will be appointed. The duties of the advisory committee consist of (1) advising the student, (2) assisting the student in preparing a Plan of Study, (3) assisting in planning and conducting the research, (4) supervising the writing of the dissertation, and (5) conducting the dissertation defense.

The chair of the committee need not necessarily serve as the student’s research adviser, but must hold an OSU faculty appointment, be a member of the Graduate Faculty with doctoral chairing privileges, and have familiarity with the academic requirements of the degree sought. Each doctoral committee must have at least one member of the Graduate Faculty from outside the student’s major department. To view the roles and responsibilities associated with members of advisory committees, go to http://gradcollege.okstate.edu/faculty-and-staff-resources.

The student should consult the members of the advisory committee frequently and keep them informed on the progress of his or her work.

**Preliminary Conference.** As soon as the student is notified that an advisory committee has been appointed, the student should arrange with the chairperson for a conference with the committee. During the conference, the preparation and qualifications of the student for graduate work will be discussed and appropriate plans made for future study.

**Plan of Study.** The student should develop the original Plan of Study with the advisor and committee using the online Plan of Study application (http://planofstudy.okstate.edu). The online submission requires approval by the advisory committee and the student’s graduate program with final approval by the Graduate College.

The original Plan of Study must be submitted to the Graduate College prior to the end of the third semester (excluding summer sessions) of enrollment in the doctoral program.

The Plan of Study must include all the acceptable graduate work that has been completed and all that will be taken for the doctoral degree. The Plan of Study should include (1) at least 75 percent of courses taken at the 5000-6000 level, (2) a minimum of 60 hours beyond the master’s degree, and (3) a minimum of 15 (maximum of 45) dissertation hours (6000) with a grade of “SR” for the 60 hour doctorate or a minimum of 15 (maximum of 60) dissertation hours (6000) for the 90 hour doctorate. Courses used to earn a master’s degree are not listed on the doctoral Plan of Study.

Credit for all courses on a graduate Plan of Study must have been awarded within 10 years of completion of all degree requirements.

Changes in the Plan of Study can be made with the approval of the advisory committee and the dean of the Graduate College. A final, accurate and approved plan must be filed by the eighth week of the semester in which the degree is to be conferred.

**Character of Work.** The satisfactory completion of course work (see “General Regulations”) is only one requirement for receiving the degree. The student must also: (1) pass a qualifying examination, (2) prepare an acceptable dissertation, (3) demonstrate the ability to do independent study, (4) pass a defense of dissertation, and (5) comply with any other requirements of the major department.

**Residence Requirements.** A minimum of 30 credit hours must be taken at OSU. While the Graduate College does not have a specific residence requirement that applies to all graduate programs, graduate programs may require a period of time in residence for students enrolled in departmental graduate programs. Departments must inform students of any residence requirements upon their admission to departmental graduate programs.

**Language Requirement.** Foreign language or other proficiency requirements may be specified to meet the need for specific skills and areas of knowledge that facilitate research and contribute to wider understanding. Specific requirements are determined by graduate programs. In many fields, a reading knowledge of one or two modern foreign languages is an important part of scholarship and necessary for research. In other fields, proficiency in special and related disciplines may be required that will contribute to the needs of the individual student.

**Admission to Doctoral Candidacy.** Admission to doctoral candidacy marks the transition into the research phase of a doctoral degree and indicates agreement that the student has demonstrated the ability to do acceptable graduate work and that satisfactory progress has been made toward a degree. Consideration for candidacy requires the presentation of a written research proposal for doctoral research to the doctoral advisory committee, who will assess the proposal and offer the student pertinent counsel, advice and feedback. The approval of the research proposal by the advisory committee is the basic requirement for admission to doctoral candidacy; individual programs will normally impose additional requirements, such as the successful completion of oral and/or written comprehensive or qualifying examinations. These additional requirements may occur in conjunction with the presentation of the research proposal, or they may occur at different times within the term specific dates. Admission to doctoral candidacy is conferred with the approval of the dean of the Graduate College, on behalf of the Graduate Council, acting upon the recommendations of program faculty. It is the responsibility of the chair of the advisory committee to notify the Graduate College when admission to candidacy is granted by submitting the Admission to Doctoral Candidacy form.

**Dissertation Hours Taken as a Doctoral Candidate.** Admission to candidacy must occur at least six months one full semester prior to the date of the final dissertation defense.

Since admission to candidacy may occur at various times related to the academic calendar, the student will need to be admitted to candidacy early in fall semester to be eligible to schedule their final dissertation defense and graduate in the spring; very early in the spring semester for summer graduation; and extremely early in the summer session for fall graduation. (See the Graduate College Calendar for term-specific dates.)

**Dissertation.** A dissertation (doctoral thesis) is required of each doctoral candidate. The subject of the dissertation must be approved by the advisory committee and the dissertation is prepared under the direction of members of the committee or a special dissertation committee approved by the advisory committee chair.

The dissertation must follow specifications in the Graduate College Thesis/Dissertation Guidelines, available at http://gradcollege.okstate.edu/tdg. The style of the document is to be determined by the advisory committee and should be reflective of publications in the student’s discipline. Any graduate student is within the dissertation must attend a format workshop prior to submission of their final copy. The dates for the workshops are on the Graduate Calendar and a webinar version is available.

All dissertation copies must have the necessary approval signatures before submission to the Graduate College.

It is strongly recommended that a graduate student submit complete copies of his or her dissertation to the committee members at least two weeks prior to the defense date, that the defense presentation be publicized, and that the dissertation defense occur on a date during the normal academic semesters and sessions. Graduate programs may have additional or more restrictive requirements for dissertation defenses.

The student should submit an electronic copy of the dissertation through the OSU electronic submission website. Instructions for on-line submission are given to the student after completion of the National Survey of Earned Doctorates. In addition, the student must submit to the Graduate College (a) one paper copy of the approval page with all original signatures and the student’s name and CWID number entered at the top of the page; and (b) one copy of the abstract. Copies must be received no later than the stated final copy submission deadline date (see the Calendar at the front of the ‘Graduate College’ section for dates).

**Final Examination.** The final examination is primarily a defense of the dissertation. The examination is open to all members of the Graduate Faculty and may be attended by anyone else who obtains the permission of the committee. If the defense is judged inadequate, a re-examination decision will be made by the advisory committee.

The committee will notify the Graduate College immediately of results of the final examination by submitting the Result of Final Examination form. Following satisfactory completion of the final examination, the candidate will make any changes required by the committee and by the Graduate College and submit the dissertation in final form signed by the committee to the Graduate College.
# Summary of Procedure for Master’s Degree

*denotes form available at [http://gradcollege.okstate.edu/forms](http://gradcollege.okstate.edu/forms)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply for admission to a graduate degree program.</td>
<td>Complete 30 days prior to enrollment or graduate program deadline. (International students see section on International Admission for deadlines.)</td>
</tr>
<tr>
<td>2. Secure assignment of a temporary adviser from the graduate program and enroll.</td>
<td></td>
</tr>
<tr>
<td>3. Complete Responsible Conduct of Research (RCR) Requirements and report completion to graduate program office.</td>
<td>Prior to submission of Plan of Study.</td>
</tr>
<tr>
<td>4. Form advisory committee.</td>
<td></td>
</tr>
<tr>
<td>5. Submit an online Plan of Study* with the assistance of advisory committee.</td>
<td>See calendar for deadlines.</td>
</tr>
<tr>
<td>6. Plan thesis/report research with research adviser and advisory committee (if applicable).</td>
<td>As early in the research phase as possible.</td>
</tr>
<tr>
<td>7. Complete major portion of course work and graduate/program requirements (e.g., exams).</td>
<td>See graduate/program guidelines.</td>
</tr>
<tr>
<td>8. Verify accuracy of Plan of Study and submit a revised plan if necessary. Secure adviser and graduate program approval for any necessary changes.</td>
<td>See Calendar for deadlines</td>
</tr>
<tr>
<td>9. Complete Graduation Clearance Form* (Graduate College) and Diploma Application (Registrar). Follow guidelines given on the Graduation Clearance Form carefully.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>10. Thesis students: Attend a workshop or watch online tutorial.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>11. Schedule the thesis/report defense. (if applicable)</td>
<td>See Calendar for deadlines, see “Thesis” section of the Catalog for recommendations on timing, and see graduate program guidelines for specific requirements.</td>
</tr>
<tr>
<td>12. Submit a copy of the thesis/report to each committee member to review (if applicable). The format must follow recommendations in the Thesis/Dissertation Manual; however, the style is to be determined by the advisory committee.</td>
<td>At least two weeks prior to the defense of the thesis.</td>
</tr>
<tr>
<td>13. Defend the thesis (if applicable). The committee chair should notify the Graduate College of the results by submitting the Result of Final Examination* form immediately following conclusion of the examination.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>14. Make any changes in thesis required by advisory committee. Submit approval page and one copy of the abstract to the Graduate College. The Graduate College makes the final decision on acceptance of the thesis. Submit the electronic thesis online.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>15. Rent or buy cap, gown, and hood at Student Union Bookstore and attend Graduate Commencement.</td>
<td>See Calendar for date of Graduate Commencement.</td>
</tr>
</tbody>
</table>
### Summary of Procedure for Doctoral Degree

*denotes form available at [http://gradcollege.okstate.edu/forms](http://gradcollege.okstate.edu/forms)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply for admission to a graduate degree program.</td>
<td>Complete 30 days prior to enrollment or graduate program deadline. (International students see section on International Admission for deadlines.)</td>
</tr>
<tr>
<td>2. Secure assignment of a temporary adviser from graduate program and enroll.</td>
<td></td>
</tr>
<tr>
<td>3. Complete Responsible Conduct of Research (RCR) Requirements and report completion to graduate program office.</td>
<td>Prior to submission of Plan of Study.</td>
</tr>
<tr>
<td>4. Form advisory committee.</td>
<td></td>
</tr>
<tr>
<td>5. Prepare Plan of Study* with the assistance of advisory committee.</td>
<td>Prior to the end of the third semester (excluding summer sessions) of enrollment.</td>
</tr>
<tr>
<td>6. Plan dissertation research with research adviser and advisory committee.</td>
<td>As early in the research phase as possible.</td>
</tr>
<tr>
<td>7. Complete major portion of course work and the graduate program requirements (e.g., exams).</td>
<td>See graduate program guidelines.</td>
</tr>
<tr>
<td>8. Have research protocol approved by advisory committee and submit Admission to Doctoral Candidacy Form* to the Graduate College.</td>
<td>See “Admission to Doctoral Candidacy” section of the Catalog for details.</td>
</tr>
<tr>
<td>9. Verify accuracy of Plan of Study and submit a revised plan if necessary. Secure adviser and graduate program approval for any necessary changes.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>10. Complete Graduation Clearance Form* (Graduate College) and Diploma Application (Registrar). Follow guidelines given on the Graduation Clearance Form carefully.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>11. Attend a format workshop or watch online tutorial.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>12. Schedule dissertation defense.</td>
<td>See Calendar for deadlines, see “Dissertation” section of the Catalog for recommendations on timing, and see graduate program guidelines for specific requirements.</td>
</tr>
<tr>
<td>13. Submit a copy of the dissertation to each committee member to review. The format must follow recommendations in the Thesis/Dissertation manual; however, the style is to be determined by the advisory committee.</td>
<td>At least two weeks prior to the defense of the dissertation.</td>
</tr>
<tr>
<td>14. Defend the dissertation. The committee chair should notify the Graduate College of the results by submitting the Result of Final Examination* form immediately following conclusion of the examination.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>15. Make any changes in dissertation required by advisory committee. Submit approval pages and one copy of the abstract to the Graduate College. The Graduate College makes the final decision on acceptance of the dissertation. Complete the National Survey of Earned Doctorates. Submit the electronic dissertation online.</td>
<td>See Calendar for deadlines.</td>
</tr>
<tr>
<td>16. Complete the required Survey of Earned Doctorate.</td>
<td></td>
</tr>
<tr>
<td>17. Rent or buy cap, gown, and hood at Student Union Bookstore and attend Graduate Commencement.</td>
<td>See Calendar for date of Graduate Commencement.</td>
</tr>
</tbody>
</table>
Graduate Faculty

The OSU Graduate Faculty are listed in two sections: Members and Members Emeriti. Degrees held and degree granting institutions are listed for each member. Dates following indicate the year that the faculty member was initially appointed to a position at Oklahoma State University.

Members

Abdel Salam, Mohamed — BS (Univ. of Khartoum, Sudan), MS (ibid.), PhD (Univ. of Texas at Dallas); Professor of Geology. 2012.

Abdolhosand, Reza—BS (Sharif Univ of Technology, Iran), MS (ibid.), PhD (Georgia Institute of Technology); Assistant Professor of Electrical and Computer Engineering. 2008.

Abramson, Charles—BA (Boston Univ), MA (ibid), PhD (ibid); Regents Professor of Psychology. 1993.

Ackman, John M.—BS (Oklahoma State Univ), MS (ibid), PhD (Stanford Univ); Assistant Professor of Electrical and Computer Engineering. 2001.

Acek, Brian—BS (Univ of Nebraska), MS (Univ of Colorado), PhD (ibid); Professor of Physics. 1977.

Adams, Brant—BM (Capital Univ.), MM (Univ of Cincinnati College Conservatory of Music), PhD (Univ of Illinois); Professor of Horticulture and Landscape Architecture. 1990.

Ahmad, Ibrahim Abe— BS (Cairo Univ.), MS (Florida State Univ.), PhD (ibid.); Regents Professor of Plant and Soil Sciences. 2009.

Ahmed, Mohamed Samir—BS (Cairo Univ), MS (Ain-Shams Univ), MS (McGill Univ), PhD (Univ of Ottawa); Associate Professor of Environmental Science. 2008.

Ahmed, Mohamed Samir—BS (Cairo Univ), MS (Ain-Shams Univ), MS (McGill Univ), PhD (Univ of Ottawa); Associate Professor of Environmental Science. 2008.

Aichele, Clint Philip—BS (Oklahoma State Univ.), PhD (Rice Univ.); Assistant Professor of Chemical Engineering. 2012.

Aichele, Douglas B.—BA (Univ of Missouri), MA (ibid), EdD (ibid); Professor of Mathematics. 1969.

Aiken, Felicita—BS (Univ of Catolica, Argentina), MBA (Univ of North Carolina), PhD (Michigan State Univ); Assistant Professor of Management. 2006.

Akesson, Mark—BS (Ithaca State Technical Univ), PhD (ibid); Adjunct Associate Professor of Physics. 2008.

Allen, Robert W.—BS (Univ of Tulsa), MS (ibid.), PhD (Univ of Texas at Austin); Professor of Finance. 1997.

Ahmad, Sabir—BS (Cairo Univ), MS (Florida State Univ), PhD (ibid.); Assistant Professor of Plant and Soil Sciences. 2009.

Amir Alif—BA (Jadavpur Univ), PhD (ibid); Assistant Professor of Accounting. 2010.

Ammersman, Loren K.—BS (Texas A&M Univ), PhD (The Univ of Texas at Austin); Department of Zoology. 2010.

Amin, Orley M.—BA (Wichita State Univ), MS (Iowa State Univ), PhD (ibid); Professor of Ecology. 1979.

Anderson, David Keith— BA (Queen's Univ, Ontario), MA (Dalhousie Univ, Nova Scotia), PhD (McGill Univ, Quebec); Adjunct Professor of Geology. 2006.

Anderson, Jeffrey—BA (Rutgers Univ.), PhD (Univ of Florida); Professor of Horticulture and Landscape Architecture. 1986.

Anderson, Michael P.—BS (Brigham Young Univ), MS (Univ of Minnesota), PhD (ibid); Associate Professor of Plant and Soil Sciences. 1990.

Anderson, Todd Alan—BS (Peru State College), MS (Univ of Tennessee), PhD (Iowa State Univ); Adjunct Professor of Zoology 2007.

Anderson, William—BS (Oklahoma State Univ), MS (ibid.), PhD (Iowa State Univ); Associate Professor of Chemistry. 1995.

Anthony, Kevin—BS (Iowa State Univ), MS (ibid.), PhD (Iowa State Univ); Professor of Forestry. 1993.

Antonenko, Pavlo (Pasha) D.—BS (Nizhyn State Pedagogical Univ), MEd (ibid), PhD (Iowa State Univ); Assistant Professor of Educational Studies. 2011.

Armstrong, Cosette M.—BS (Middle Tennessee State Univ), MS (Kansas State Univ), PhD (ibid); Assistant Professor of Design, Housing and Merchandising. 2011.

Armstrong, John Scott— BS (Texas Tech Univ), MS (Oklahoma State Univ), PhD (Colorado State Univ); Adjunct Professor of Entomology & Plant Pathology. 2013.

Armstrong, Jon-Joseph Quincy—BS (Kansas State Univ), MS (Purdue Univ), PhD (Michigan State Univ); Assistant Professor of Plant and Soil Sciences. 2010.

Arnold, Todd J.—BBA (Univ of Texas), MBA (Univ of Wyoming), PhD (Univ of Missouri); Associate Professor of Marketing. 2009.

Arrese, Estela Laura—BS (Univ of La Plata), PhD (ibid); Research Associate Professor of Biochemistry and Molecular Biology. 2008.

Asghari, Mahdi—BS (Sharif Univ of Tech), MS (Purdue Univ), PhD (ibid); Assistant Professor of Mathematics. 2008.

Ateknwa, Elion Anong—BS (Univ of Maryland), MS (Howard Univ), PhD (Western Michigan Univ); Associate Professor of Geology. 2006.

Ateknwa, Estella Awopegas—BS (Howard Univ), MS (ibid), PhD (Dalhousie Univ); Regents Professor of Geology. 2006.

Atiye, Jorge H.—BArch (Universidad Nacional Pedro Henriquez Urena), MUP (Virginia Polytechnic Institute and State Univ), PhD (ibid); Professor of Design, Housing and Merchandising. 2010.

Atiyeh, Hasan—BS (Jordan Univ of Science & Tech), MS (ibid), PhD (Univ of Ottawa); Assistant Professor of Bioeconomics and Agricultural Engineering. 2009.

Aulburg, Kaye Struct—BS (Oldham State Univ), MS (Univ of Oklahoma), PhD (ibid); Assistant Professor of Communication Sciences and Disorders. 2006.

Ausburn, Lynna Joyce—BS (Univ of Tulsa), MA (ibid), PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 2000.

Ayoubi, Patricia Jane—BS (Univ of Oklahoma), MS (ibid), PhD (ibid); Assistant Professor of Biochemistry and Molecular Biology. 2005.
Aziz, Seemi A.—BA (The Univ of Punjab, Pakistan), MA (Univ of Arizona), MFA (The Univ of Punjab, Pakistan), PhD (Univ of Arizona); Assistant Professor of Teaching and Curriculum Leadership. 2010.

Babu, Kaladi S.—BSc (Univ of Mysore, India), MSc (Indian Inst of Technology, Bombay, India), PhD (Univ of Hawaii); Professor of Philosophy. 1998.

Backus, Irene Bowen—BA (Kalamazoo College), MA (Univ of Chicago), PhD (ibid.); Assistant Professor of Art. 2012.

Baghurst, Timothy M.—BSc (Univ of Chichester), MSc (Univ of Bangor), PhD (Univ of Arkansas); Assistant Professor of Applied Health and Educational Psychology. 2012.

Bailey, Keith L.—BS (Arkansas State Univ), DVM (Univ of Missouri, Columbia), PhD (ibid); Associate Professor of VBS: Pathobiology. 2011.

Bailey, Lucy E.—BA (Univ of Tennessee), MA (The Ohio State Univ), PhD (ibid); Associate Professor of Educational Studies. 2005.

Beach, Maria Christine—BS (Vanderbilt Univ), MA (Villanova Univ), MEd (Vanderbilt Univ); Associate Professor of Human Development & Family Science. 2004.

Baker, Marshall A.—BS (Univ of Florida), MS (ibid.), PhD (Oklahoma State Univ); Adjunct Professor of Agricultural Education. 2013.

Baker, Sharon—BS (Oklahoma College of Liberal Arts), MEd (Univ of Oklahoma), EdD (Oklahoma State Univ); Adjunct Professor of Human Development & Family Science. 2013.

Balasubraman, Balahashker—BTech (Indian Institute of Technology), PhD (Texas A&M Univ); Assistant Professor of Industrial Engineering and Management. 2007.

Ballard, Holly Woodward—BA (North Carolina State College), MS (Texas Tech Univ), PhD (Montana State Univ); Assistant Professor of CHS: Anatomy and Cell Biology 2013.

Bandy, Donna Kay—BA (Univ of Iowa), MA (Drexel Univ), PhD (ibid); Professor of Physics. 1987.

Banks, J.C.—BS (Oklahoma State Univ), MS (ibid.), PhD (ibid); Professor of Plant and Soil Sciences. 1988.

Barchini, Leticia—BA (Univ Nacional de Tucuman, Argentina), PhD (Univ Nacional de Cordoba, Argentina); Professor of Mathematics. 1997.

Barnez, Laura L.—BA (Univ of Nebraska, Lincoln), MA (ibid), PhD (ibid); Associate Professor of English. 2002.

Barney, David Clive—BS (Weber State Univ), MEd (Utah State Univ). EdD (Florida State Univ); Associate Professor of Applied Health and Educational Psychology. 2007.

Baron, Robert—BS (City Univ of New York), MA (Univ of Iowa), PhD (ibid); Professor of Entrepreneurship and Emerging Enterprise. 2010.

Barringer, Bruce—BS (Iowa State Univ), MBA (ibid.), PhD (Univ of Missouri); Professor of Entrepreneurship and Emerging Enterprise. 2010.

Barrow, William W.—BS (Midwestern State Univ), MS (Univ of Houston), PhD (Colorado State Univ); Professor of VBS: Pathobiology. 2001.

Bartels, Kenneth E.—MS (Colorado State Univ), DVM (Iowa State Univ); Professor of VBS: Veterinary Clinical Sciences. 1982.

Bartholomew, Rick L.—BArch (Oklahoma State Univ), MS (ibid); Visiting Assistant Professor of Design, Housing and Merchandising. 2010.

Basu, Arpita—BS (Univ of Calcutta, India), MS (ibid), PhD (Texas Woman's Univ); Assistant Professor of Nutritional Sciences. 2006.

Basu, Raja—BA (Delhi Univ), MBA (Duke Univ), PhD (Purdue Univ); Associate Professor of Management. 1991.

Baughman, Todd Alan—BS (Oklahoma State Univ.), MS (ibid.), PhD (Mississippi State Univ); Adjunct Professor of Plant and Soil Sciences. 2013.

Baur, William W.—BS (Midwestern State Univ), MS (Univ of Houston), PhD (Colorado State Univ); Professor of VBS: Pathobiology. 2001.

Baxes, Leslie Allen—BS (Oklahoma State Univ), MS (ibid), PhD (Mississippi State Univ); Adjunct Professor of Plant and Soil Sciences. 2013.

Bauman, Kristen—BS (The College of William and Mary), MS (Texas A&M Univ), PhD (ibid); Associate Professor of Zoology. 2006.

Baums, Brad—BA (Ohio State Univ), MS (Univ of Tennessee), PhD (Univ of Nebraska); Associate Professor of Geography. 1995.

Beach, Mary Christine—BS (Vanderbilt Univ), MA (Villanova Univ), MEd (Vanderbilt Univ), PhD (Univ of Texas at Austin); Assistant Professor of Theatre. 2009.

Beasley, Lana Olivo—BS (Oklahoma State Univ), MA (Univ of Kansas), PhD (ibid); Assistant Professor of Psychology. 2010.

Beauchamp, Toby Cason—BA (Univ of Florida), PhD (Univ of California, Davis); Assistant Professor of English. 2012.

Beery, Gary J.—BS (Phillips Univ), MA (Univ of Illinois); Assistant Professor of Communication Sciences and Disorders. 1974.

Beam, Marley Dale—BA (Claremont McKenna College), MAG (Auburn Univ), PhD (Oklahoma State Univ); Adjunct Professor of Natural Resource Ecology and Management. 2013.

Beier, Richard—BS (Kansas State Univ), MS (ibid), PhD (Univ of California); Professor of Engineering Technology Division. 2002.

Belden, Jason B.—BS (Southeastern College), MS (Univ of Wisconsin, Milwaukee), PhD (Iowa State Univ); Assistant Professor of Zoology. 2007.

Bell, Gregory E.—BS (Ohio State Univ), MS (ibid), PhD (ibid); Associate Professor of Horticulture and Landscape Architecture. 1997.

Bell, Patricia A.—BS (Ohio State Univ), MS (ibid), PhD (Univ of Texas); Professor of Sociology. 1981.

Bell, Stephen S.—BSEE (Univ of Wisconsin), MSE (ibid.), PhD (ibid.); Associate Professor of Electrical & Computer Engineering. 1988.

Beloff, Caroline—BS (Florida Atlantic Univ), MEd (Texas A&M Univ); PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 2003.

Beller, Danielle—BS (Michigan State Univ), PhD (Purdue Univ); Associate Professor of Biosystems and Agricultural Engineering. 1997.

Bennett, Rebecca Susan—BS (Univ of Maryland, College Park), PhD (Cornell Univ); Adjunct Assistant Professor of Entomology & Plant Pathology. 2013.

Benson-Cain, Rebecca—BA (Univ of New Orleans), MA (Michigan State Univ), PhD (Univ of California, Santa Barbara); Assistant Professor of Philosophy. 2007.

Benton, Eric R.—BS (Univ of San Francisco), PhD (Univ of California, Berkeley); Assistant Professor of Physics. 2006.

Bergey, Elizabeth A.—BS (Univ of Oklahoma), MS (Colorado State Univ), PhD (Univ of California, Berkeley); Department of Natural Resource Ecology and Management. 2011.

Berlin, Kenneth Darrell—BA (North Central College, Illinois), PhD (Univ of Illinois, Urbana); Regents Professor of Chemistry. 1960.

Betts, Nancy M.—BA (Pennsylvania State Univ), MS (The Ohio State Univ), PhD (ibid); Professor of Nutritional Sciences. 2005.

Bidwell, Joseph R.—BS (Sienna College), MS (Virginia Technical Univ), PhD (ibid); Associate Professor of Zoology. 2001.

Bidwell, Terence G.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Natural Resource Ecology and Management. 1998.

Biermacher, Jon T.—BS (Southern Illi), MS (Southern Illi), PhD (ibid); Adjunct Assistant Professor of Agricultural Economics. 2010.

Billman, Jon Donald—BA (Fort Lewis College), MA (Univ of Texas), PhD (ibid); Adjunct Professor of Plant and Soil Sciences. 2007.

Bender, Carol L.—BS (Texas Tech Univ), MS (Oregon State Univ), PhD (Univ of California); Regents Professor Emeritus of Entomology and Plant Pathology. 1986.

Benjamin, Bruce A.—BA (Westminster College), PhD (Univ of Oklahoma); Associate Professor of CHS: Pharmacology and Physiology. 1997.

Bennett, Rebecca Susan—BS (Univ of Maryland, College Park), PhD (Cornell Univ); Adjunct Assistant Professor of Entomology & Plant Pathology. 2013.

Bilbeisi, Mohammed U.—BArch (Oklahoma State Univ), MArch (ibid.); Professor of Architecture. 1999.

Bilbeisi, Suzanne Denise—BArch (Oklahoma State Univ), MArch (ibid.); Professor of Architecture. 1999.

Billman, Jon Donald—BA (Iowa Wesleyan College), MFA (Eastern Washington Univ); Assistant Professor of English. 2007.

Binegar, Birne—BS (Univ of California, Los Angeles), MS (ibid), PhD (ibid); Associate Professor of Mathematics. 1988.

Bird, Lee E.—BS (Univ of Arizona), MS (Univ of Wisconsin Superior), PhD (Univ of Arizona); Adjunct Assistant Professor of Educational Studies. 2000.

Biros, David P.—BA (Flagler College), MA (The Troy State Univ), MS (Air Force Institute of Technology), PhD (Florida State Univ); Associate Professor of Management Science and Information Systems. 2006.

Biscoe, John Paul—BA (Univ of Maryland), PhD (Yale Univ); Assistant Professor of History. 1976.

Bishop, Alex L.—BA (Benedictine College), MA (Western Illinois Univ), PhD (Israel); Associate Professor of Human Development and Family Science. 2005.

Blackwell, Cindy Southard—BA (Univ of Texas at Austin), BIP (Texas A&M Univ), PhD (ibid); Assistant Professor of Agricultural Education. 2004.

Blanchong, Julie Anne—BS (Bowling Green State Univ), MS (Michigan State Univ), PhD (ibid.); Adjunct Professor of Natural Resource Ecology and Management. 2013.

Bleval, Bradley Scott—BS (Brigham Young Univ), MS (ibid), PhD (Univ of Washington); Assistant Professor of Accounting. 2011.
Blench, Meredith—BM (Indiana Univ), MM (ibid), DMA (Eastman School of Music); Assistant Professor of Music.

Blewett, Earl L.—BSc (Univ of Saskatchewan), MSc (ibid), PhD (ibid); Associate Professor of CHS: Biochemistry and Microbiology. 1997.

Bliss, Timm James—BS (Texas Tech Univ), MS (ibid), Edd (Oklahoma State Univ); Associate Professor of Educational Studies. 2001.

Blouin, Edmond F.—BS (Suffolk Univ), MA (Univ of South Dakota, Vermillion), PhD (Oklahoma State Univ); Assistant Professor Emeritus of VBS: Pathobiology. 1989.

Blum, Denise Frances—BA (Rhodes College), MA (Univ of Texas at Austin), PhD (ibid); Assistant Professor of Educational Studies. 2009.

Blum, Frank D.—BS (Eastern Illinois Univ), MS (ibid), PhD (Univ of Minnesota, Minneapolis); Regents Professor of Chemistry. 2010.

Boardman, Darwin R.—BS (Texas Tech Univ), MS (Ohio Univ), PhD (Texas Tech Univ); Associate Professor of Geology. 1992.

Boileau, Melanie Julie—MS (Oklahoma State Univ), DVM (Montreal Univ); Associate Professor of VBS: Veterinary Clinical Sciences. 2006.

Bolek, Matthew G.—BS (Carroll College), MS (Univ of Wisconsin, Milwaukee), PhD (Univ. of Nebraska, Lincoln); Assistant Professor of Zoology, 2009.

Boman, Randal Keith—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Research Professor of Plant and Soil Sciences. 2011.

Boquist, Alexander W.—BS (Purdue Univ), PhD (Univ of Wisconsin, Madison); Assistant Professor of Finance. 2011.

Borland, Jennifer Regan—BA (Univ of Pennsylvania), MA (Stanford Univ), PhD (ibid); Assistant Professor of Art. 2008.

Borunda, Mario F.—BS (Univ of Texas at El Paso), PhD (Texas A&M Univ); Assistant Professor of Physics. 2012.

Bose, James E.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Engineering Technology Division. 1960.

Boswell, Donald L.—BA (Univ of Central Florida), MS (Indiana State Univ), PhD (ibid); Associate Professor of Applied Health and Educational Psychology. 1991.

Boure, Christina R.—BS (Univ of Oklahoma), PhD (Univ of Oklahoma Health Science Center); Research Associate of VBS: Physiological Sciences. 2012.

Boure, David WA.—BP harm (Victorian College of Pharmacy), MS (Univ of Kansas), PhD (ibid); Adjunct Professor of VBS: Physiological Sciences, 2003.

Bouton, Joseph H.—BS (Mississippi State Univ), MS (Univ of Florida), PhD (ibid); Adjunct Professor of Plant and Soil Sciences. 2007.

Bovenschuen, Wayne Eric—BA (Mich. State Univ), MM (ibid); Associate Professor of Music. 1987.

Bowler, Wm. Matthew—BS (Southwest Missouri State Univ), MBA (ibid), PhD (Univ of Kentucky); Assistant Professor of Management. 2006.

Bowser, Timothy J.—BS (Pennsylvania State Univ), MS (ibid), PhD (Univ of Tennessee); Associate Professor of Biosystems and Agricultural Engineering. 1997.

Boyer, Tracy Ann—BA (Stanford Univ), MA (Univ of Minnesota), PhD (ibid); Assistant Professor of Agricultural Economics. 2003.

Boyle, Michael Patrick—BA (Univ. of Delaware), MS (The Pennsylvania State Univ), PhD (ibid); Assistant Professor of Communications Sciences and Disorders. 2012.

Bracy, Robert Michael—BA (Univ of Arkansas), MA (ibid), PhD (ibid); Associate Professor of History. 2005.

Brandenberger, Lynn—BS (Oklahoma State Univ), MAG (Texas A&M Univ), PhD (Univ of Arkansas) Associate Professor of Horticulture and Landscape Architecture. 2002.

Branson, Michael H.—BS (Illinois Benedictine College), MA (Arizona State Univ), PhD (ibid); Associate Professor Emeritus of Industrial Engineering and Management. 1985.

Brasuell, Troy Lee—BA (Univ of Central Oklahoma), MFA (Wayne State Univ); Assistant Professor of Theatre. 2013.

Braun, Janet Kay—BS (Univ of Memphis), MS (ibid), PhD (Univ of Oklahoma); Adjunct Assistant Professor of Zoology 2009.

Brenske, Melanie Ann—BS (Oklahoma State Univ), DVM (ibid), PhD (ibid); Associate Professor of VBS: Pathobiology. 2005.

Brewe, Shannon K.—BS (Missouri Western Univ), MS (Univ of Missouri), PhD (ibid); Adjunct Assistant Professor of Natural Resource Ecology and Management. 2010.

Breien, Martin Willem—BA (Leiden Univ, The Netherlands), MA (ibid), PhD (Univ of Amsterdam, The Netherlands); Lecturer of Political Science. 2013.

Breien, Rebecca—BA (Wellesley College), MA (Harvard Univ), MS (Northwestern Univ), PhD (ibid.); Professor of Art. 2013.

Brofitt, Virginia Lea—BA (North Carolina School of the Arts), MM (ibid), DMA (Univ of Cincinnati); Assistant Professor of Music. 2011.

Brooks, Ronald Clark—BS (Old Dominion Univ), MFA (ibid), PhD (Univ of Oklahoma); Associate Professor of English. 2005.

Brons, B. Wade—BS (Oklahoma State Univ), MS (ibid), PhD (Texas A&M Univ); Regents Professor of Agricultural Economics. 1991.

Brovi, Matthew William—BS (Univ of Missouri, Northwest), MS (Univ of Arkansas), PhD (Michigan State Univ); Assistant Professor of Human Development and Family Science. 2005.

Brown, Anthony Edward—BA (Baylor Univ), MPA (Univ of Tennessee), PhD (ibid); Associate Professor of Political Science. 1980.

Brown, Barbara Jean—BS (Kansas State Univ), MS (ibid), PhD (Oklahoma State Univ); Assistant Professor of Nutritional Sciences. 2000.

Brown, Glenn Owen—BS (Arizona State Univ), MS (Colorado State Univ), PhD (ibid); Regents Professor of Biosystems and Agricultural Engineering. 1987.

Brown, Michael A.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Adjunct Assistant Professor of Animal Science. 2009.

Brown, Nicholas R.—BS (Oklahoma State Univ), MPA (Univ of Oklahoma), PhD (Oklahoma State Univ); Instructor of Agricultural Education. 2012.

Brown, Pamela U.—BA (Univ of Oklahoma), MS (ibid), Edd (Oklahoma State Univ); Professor of Teaching and Curriculum Leadership. 1999.

Brown, Theresa Clare—BA (Truman State Univ), MA (Univ. of Iowa), PhD (Univ of Kansas); Assistant Professor of Applied Health and Educational Psychology. 2012.

Brown, Tom J.—BS (Oklahoma State Univ), MBA (ibid), PhD (Univ of Wisconsin, Madison); Professor of Marketing. 1997.

Brunker, Jill D.—BS (Oklahoma State Univ), DVM (ibid), Diplomate (ibid); Assistant Professor of VBS: Veterinary Clinical Sciences. 2009.

Broxon, Dana Sue—BS (ibid.), MS (ibid), PhD (Univ of Texas at Austin); Adjunct Associate Professor of Computer Science. 2013.

Bruton, Benny D.—BS (East Central Oklahoma State Univ), MS (Oklahoma State Univ), PhD (Texas A&M Univ); Adjunct Professor of Entomology and Plant Pathology 1997.

Bryans, William S.—BA (Colorado State Univ), MS (ibid), PhD (Univ of Wyoming); Associate Professor of History. 1988.

Buckner, David Lee—BSE (Univ of Arkansas), ME (ibid), PhD (ibid); Assistant Professor of Teaching and Curriculum Leadership. 2006.

Bukkapattam, Satich T.—BTech (SV Univ India), MS (Pennsylvania State Univ), PhD (ibid); Professor of Industrial Engineering and Management. 2004.

Bulut, Rifat—BS (Middle East Technical Univ, Turkey), MS (Texas Tech Univ), PhD (Texas A&M Univ); Assistant Professor of Civil and Environmental Engineering. 2006.

Bunce, Richard A.—BS (Marietta College), PhD (Univ of Wisconsin, Madison); Professor of Chemistry. 1983.

Bunting, Charles F.—BSEE (Old Dominion Univ), MSEE (Virginia Technical Univ). PhD (ibid); Professor of Electrical and Computer Engineering. 2001.

Burchard, Hermann G.—Dipl-Math (Univ of Hamburg), PhD (Purdue Univ); Professor of Mathematics. 1972.

Burkhonde, Kristen M.—BA (Scripps College), MA (Univ of Minnesota), PhD (ibid); Assistant Professor of History. 2005.

Burkeley, Edward—BS (Southern Illinois Univ), MA (ibid), PhD (Univ of North Carolina); Assistant Professor of Psychology. 2006.

Burkley, Melissa—BS (Southern Illinois Univ), MA (ibid), PhD (Univ of North Carolina); Assistant Professor of Psychology. 2006.

Burkman, James Richard—BA (Western State College), MBA (Indiana Univ), PhD (ibid); Visiting Assistant Professor of Management Science and Information Systems. 2010.

Burnap, Robert L.—BS (Univ of Michigan), MA (Univ of California, Los Angeles), PhD (Univ of California, Santa Barbara); Professor of Microbiology and Molecular Genetics. 1991.

Burnham, David Kim—BS (Brigham Young Univ), MS (ibid), PhD (Univ of Texas Health Sciences Center); Associate Professor of Microbiology and Molecular Genetics. 1988.

Burrell, Anthony T.—BS (Univ of California-Santa Barbara), MS (West Coast Univ), PhD (Univ of Virginia); Associate Professor of Computer Science. 1999.

Buser, Michael Dean—AAS (Rogers State College), BS (Oklahoma State Univ), MS (ibid), PhD (ibid), Professor of Plant and Soil Sciences. 2007.

Buser, Michael Dean—AAS (Rogers State College), BS (Oklahoma State Univ), MS (ibid), PhD (ibid), Professor of Plant and Soil Sciences. 2007.
Byrd-Graven, Jennifer—BA (Univ of New Mexico), MS (Univ of Texas, Tyler), PhD (Univ of Missouri); Assistant Professor of Psychology. 2008.
Byrnes, Jeffrey Myer—BA (Case Western Reserve Univ), PhD (Univ of Pittsburgh); Assistant Professor of Geology. 2007.
Byrnes, Joseph F.—BA, [De Montfort Seminary], MA (Univ of Notre Dame), MA, PhD (Univ of Chicago); Professor of History. 1976.
Caddel, John L.—BS (Texas A&M Univ), PhD (Oklahoma State Univ); Professor of Plant and Soil Sciences. 1977.
Cai, Tony—BS (Tianjin Univ, China), MS (ibid), PhD (Oklahoma State Univ); School of Chemical Engineering. 2010.
Cain, James W.—BA (Univ of Delaware), PhD (Univ of Pennsylvania); Associate Professor of Philosophy. 1998.
Caldwell, Lloyd N.—BA (Univ of Cincinnati), MFA (Virginia Commonwealth Univ); Associate Professor of Theatre. 2004.
Calvo-Lorenzo, Michele Sarah—BS (Florida International Univ), MS (Univ of California, Davis), PhD (ibid); Assistant Professor of Animal Science. 2013.
Campiche, Jody Lynn—BS (Oklahoma State Univ), MS (ibid), PhD (Texas A&M Univ); Associate Professor of Agricultural Economics. 2009.
Caneday, Lowell—BA (LeTourneau College), MA (Univ of Wyoming), PhD (Univ of Minnesota); Regents Professor of Applied Health and Educational Psychology. 1981.
Caniglia, Beth Schaefer—BA (Univ of Nebraska), MA (Univ of Notre Dame), PhD (ibid); Associate Professor of Sociology. 2000.
Cantley, Penny L.—BS (Univ of Oklahoma), PhD (ibid); Visiting Assistant Professor of Teaching and Curriculum Leadership. 2011.
Caplow, Nancy J.—BA (Colgate Univ), MA (Indiana Univ), PhD (Univ of California, Santa Barbara); Assistant Professor of English. 2011.
Carlozzi, Alfred—BA (Iona College), MA (Trinity Univ), EdD (Univ of Houston); Professor of Applied Health and Educational Psychology. 1979.
Campacci, Carla—BA (Michigan State University), MEd (Univ of Houston), PhD (Oklahoma State Univ); Assistant Professor of Applied Health and Educational Psychology. 2001.
Carlson, John Douglas—BS (Michigan State Univ), MS (Univ of Wisconsin-Madison), PhD (The Ohio State Univ); Research Associate of Biosystems and Agricultural Engineering. 1991.
Carpen
ty, Nancy J.—BA (Albion College), MS (Univ of Michigan), PhD (ibid); Adjunct Professor of CHS: Biochemistry and Microbiology. 1995.
Carroll, Pamela Sissi—BA (Auburn Univ), BS (ibid.), MS (Florida State Univ), EdD (ibid.); Professor of Teaching and Curriculum Leadership. 2012.
Carter, Brian J.—BS (Rutgers Univ), MS (Pennsylvania State Univ), PhD (ibid); Professor of Plant and Soil Sciences. 1982.
Carter, David A.—BS (Brigham Young Univ), MBA (Utah State Univ), PhD (Univ of Georgia); Professor of Finance. 1998.
Carter, Scott D.—BS (Brigham Young Univ), PhD (ibid); Adjunct Professor of Electrical and Computer Engineering. 2006.
Chen, Guangping—BS (Heilongjiang Univ, China), MS (Beijing Univ, China), PhD (Univ of Texas at Austin); Associate Professor of VBS: Physiological Sciences. 2001.
Chen, Ruijin—BS (Lanzhou Univ, China), PhD (Univ of Texas at Austin); Associate Professor of History. 1991.
Cheng, An—BA (Hainan Normal Univ), MA (Guangdong Univ of Foreign Studies), PhD (Pennsylvania State Univ); Associate Professor of English. 2005.
Cheng, Qi—BE (Shanghai Jiao Tong Univ), MS (Syracuse Univ), PhD (ibid); Associate Professor of Electrical and Computer Engineering. 1995.
Cheville, Richard Alan—BSEE (Rice Univ), MSEE (ibid), PhD (ibid); Associate Professor of Electrical and Computer Engineering. 2009.
Cho, Hira—BA (Sookmyung Univ), MS (ibid), PhD (ibid); Assistant Professor of Design, Housing and Merchandising. 2006.
Cho, Yoon-Jung—BS (Seoul National Univ), MA (ibid), PhD (Univ of Texas at Austin); Assistant Professor of Applied Health and Educational Psychology. 2009.
Choi, James Richard—BS (Univ of Detroit), MS (Purdue Univ), PhD (Wayne State Univ); Professor of Mathematics. 1970.
Choo, Philip—BA (Seoul National Univ. of Technology, Korea), MFA (Iowa State Univ); Associate Professor of Art. 2012.
Chowdhury, Girish—BEN (Royal Melbourne Institute of Technology), MS (Georgia Institute of Technology), PhD (ibid); Assistant Professor of Mechanical and Aerospace Engineering. 2013.
Christensen, Robert Stiles—BA (Queens College, Univ of New York), MS (Univ of Michigan), EdD (Brigham Young Univ); Assistant Professor of Applied Health and Educational Psychology. 2007.
Chung, Chanjin—BS (Kon-Kuk Univ), MS (ibid), PhD (Univ of Minnesota); Professor of Agricultural Economics. 2003.
Chung, Yea Sun—BA (Sogang Univ Korea), MS (Virginia Technical Univ), PhD (ibid); Assistant Professor of Hotel and Restaurant Administration. 2011.
Clark, Gregory Paul—BA (Michigan State Univ), MBA (Univ of Phoenix), PhD (Michigan State Univ); Assistant Professor of Design, Housing & Merchandising. 2012.
Clark, Burton Adrian—BS (Strayer Univ), MA (Catholic Univ. of America), EdD (Nova Southeastern Univ.); Adjunct Professor of Political Science. 2013.
Clark, Julie Porter—BS (Univ of Oklahoma), MS (Oklahoma State Univ), PhD (ibid); Assistant Professor of Applied Health and Educational Psychology. 2007.
Clark, Mary Kristen—BS (Univ of North Carolina at Greensboro), MS (Univ of North Carolina at Chapel Hill), PhD (Univ of North Carolina at Greensboro); Assistant Professor of Communications Sciences and Disorders. 2012.
Clark, Peter E.—BS (Oklahoma State Univ), PhD (ibid); Professor of Chemical Engineering. 2013.
Clarke, Stephen L.—BS (Univ of Oklahoma Health Science Center), MS (ibid), PhD (Univ of Wisconsin-Madison); Assistant Professor of Nutritional Sciences. 2007.
Clary, Cynda R.—BS (California Polytechnic State Univ), MS (Purdue Univ), PhD (North Carolina State Univ); Professor of Agricultural Economics. 2012.
Christie, Kenneth—BS (Univ of California, Davis), PhD (ibid); Visiting Assistant Professor of Computer Science. 2011.
Cline, David—BS (Brigham Young Univ), MS (ibid), PhD (ibid); Visiting Assistant Professor of Computer Science. 2011.
Coffey, William Scott—BS (Valparaiso Univ), MS (Univ of Arkansas), PhD (Oklahoma State Univ); Adjunct Assistant Professor of Geography. 2009.

Cohen, Alex William—BS (Univ. of Arizona), MS (ibid.), MD (Yeshiva Univ.), PhD (ibid.); Adjunct Associate of VBS: Veterinary Clinical Sciences 2013.

Cole, Belinda McCharen—BS (Southwestern Oklahoma State Univ), MEd (Univ of Central Oklahoma), EdD (Oklahoma State Univ); Associate Professor of Teaching and Curriculum Leadership. 2008.

Cole, Janet C.—BS (South Dakota State Univ), MS (Kansas State Univ), PhD (Texas A&M Univ); Regents Professor of Horticulture and Landscape Architecture. 1988.

Collins, Terry R.—BS (Texas Tech Univ), MS, PhD (Oklahoma State Univ); Associate Professor of Industrial Engineering and Management. 2007.

Conner, Jonathan—BA (Indiana Univ), MA (Ohio State Univ), PhD (ibid); Professor of Geography. 1994.

Compton, Paul R.—BM (Univ of Texas at Arlington), MM (ibid), DMA (Univ of North Texas); Associate Professor of Music. 2003.

Condace, Anne-Marie—BS (Lic Ind 37), MM (Rice Univ); Associate Professor of Music. 2005.

Confer, Anthony W.—BS (Oklahoma State Univ), MS (Ohio State Univ), DVM (ibid); PhD (Univ of Missouri); Regents Professor of VBS: Pathobiology. 1981.

Conn, Joseph P.—BS (Oklahoma State Univ), MS, PhD (ibid); Adjunct Assistant Professor of Mechanical and Aerospace Engineering. 2010.

Conti, Gary Joseph—BS (Northern Illinois Univ), MS (ibid), EdD (ibid); Professor of Educational Studies. 1997.

Conway, Kenneth E.—BA (State Univ of New York College, Potsdam), MS (State Univ of New York College, Syracuse), PhD (Univ of Florida); Professor of Entomology and Plant Pathology. 1978.

Cooper James F.—BA (Univ of Connecticut), MA (ibid), PhD (ibid); Professor of History. 1988.

Cooper Steven R.—BS (Texas Tech Univ), MS (Univ of Illinois), PhD (Oklahoma State Univ); Associate Professor of Animal Science. 1999.

Cordova, Carlos E.—BA (National Autonomous Univ of Mexico), MA (ibid), PhD (Univ of Texas at Austin); Professor of Geography. 1997.

Cornell, Robert M.—BS (Truman State Univ), PhD (Univ of Utah, Salt Lake City); Assistant Professor of Accounting. 2006.

Cosh, Michael H.—BS (Pennsylvania State Univ), MS (Cornell Univ), PhD (ibid.); Adjunct Associate of Plant and Soil Sciences. 2012

Cox, Charles B.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Agricultural Education. 1988.

Cox, Jr., Ronald Blake—BA (Hunting Univ), MA (Univ of Louisiana, Monroe), PhD (Michigan State Univ); Assistant Professor of Human Development and Family Science. 2007.

Cramer, Joel Timothy—BA (Creighton Univ), MED (Univ of Nebraska, Lincoln), PhD (ibid); Associate Professor of Applied Health and Educational Psychology. 2011.

Crauder, Bruce—BA (Haverford College), MA (Columbia Univ), PhD (ibid); Professor of Mathematics. 1986.

Cremaschi, Lorenzo—BS (Univ of Modena), MS (ibid), PhD (Univ of Maryland); Assistant Professor of Mechanical and Aerospace Engineering. 2006.

Cretzer, Hugh C.—BS (Brigham Young Univ), PhD (Univ of Oklahoma); Associate Professor of Applied Health and Educational Psychology. 2009.

Crick, Christopher John—BA (Harvard Univ), MS (ibid.), PhD (Yale Univ); Assistant Professor of Computer Science. 2012.

Cris, Michael M.—BS (Illinois State Univ), MS (ibid), PhD (Auburn Univ); Associate Professor of Human Development and Family Science. 2005.

Criswell, Jm T.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Entomology and Plant Pathology 1988.

Crocchik, Sonia—MS (ibid), DVM (ibid.); Associate Professor of VBS: Veterinary Clinical Sciences. 2012.

Croft, Julie May—BS (San Diego State Univ), MPH (Boston Univ), PhD (Joint Doctoral Program UCSD & SDSU); Assistant Professor of Applied Health and Educational Psychology. 2010.

Cronk, Judith Picard—BA (Nazareth College), MFA (Wayne State Univ); Associate Professor of Theatre. 1991.

Cross, Stephen Alan—BS (Univ of Arkansas), MS (ibid), PhD (Auburn Univ); Professor of Civil and Environmental Engineering. 2003.

Cruise, Anna M.—BS (Univ of Missouri, Columbia), MS (ibid), PhD (Massachusetts Institute of Technology/Woods Hole Oceanographic Institution (Joint Program); Assistant Professor of Geology. 2005.

Cummings, Daniel Chad— BS (Oklahoma State Univ), MS (ibid.), PhD (ibid.); Adjunct Professor of Natural Resource Ecology and Management. 2010.

Currie, Kevin M.—BS (State Univ of New York at Albany), MA (ibid), PhD (ibid); Professor of Economics. 1984.

Curry, John H.—BA (Brigham Young Univ), MA (Utah State Univ), PhD (ibid.); Assistant Professor of Educational Studies. 2005.

Curry, Katherine A.—BS (West Texas State Univ), MEd (Southeastern Oklahoma State Univ), EdD (Univ of Oklahoma); Assistant Professor of Educational Studies. 2011.

Curris, Catherine R.—BM (Rider Univ), MS (Univ of Central Florida), PhD (ibid); Assistant Professor of Hotel and Restaurant Administration. 2011.

Curris, Joseph Thomas—BS (Slippery Rock Univ), MS (Univ of Pittsburgh), PhD (Univ of Missouri); Assistant Professor of CHS: Pharmacology and Physiology. 2006.

Curts, Kathleen S.—BS (Slippery Rock Univ), MS (Univ of Pittsburgh), PhD (ibid); Assistant Professor of CHS: Pharmacology and Physiology. 2006.

Cushing, Christopher C.—BS (Univ of Kansas), MS (Missouri State Univ); Assistant Professor of Psychology. 2012.

D’Andrea, David M.—BA (Univ of Rhode Island), MA (Univ of Virginia), PhD (ibid); Associate Professor of History. 2003.

D’Offey, Jean Michel—BVsC (Pretoria, South Africa), Dip TVM (Edinburgh, Scotland), PhD (Univ of Missouri, Columbia); Professor of VBS: Pathobiology 1986.

Dahlgren, David K.—BS (Utah State Univ), MS, PhD (ibid.); Adjunct Professor of Natural Resource Ecology and Management. 2011.

Dai, H. K.—BMath (Univ of Waterloo), MS (Univ of Washington), PhD (ibid); Associate Professor of Computer Science. 1998.

Dalal, Nikunj P.—BS (MS Univ), MBA (South Gujarat Univ), MS (Texas Tech Univ), PhD (ibid); Assistant Professor of Management Science and Information Systems. 1990.

Damicone, John P.—BS (Univ of Rhode Island), MS (Univ of Massachusetts), PhD (ibid); Professor of Entomology and Plant Pathology. 1990.

Damron, Rebecca L.—BA (Univ of Wisconsin), MA (Univ of Kentucky), PhD (ibid); Assistant Professor of English. 2001.

Damron, W. Stephen—BS (Univ of Tennessee, Martin), MS (Univ of Tennessee, Knoxville), PhD (ibid); Professor of Animal Science. 1988.

Darcy, Robert Emmett—BA (Univ of Wisconsin), MS (Univ of Kentucky), PhD (ibid); Regents Professor Emeritus of Political Science. 1977.

Dare, William H.—BS (Univ of Maryland), MBA (Virginia Technical Univ), PhD (ibid); Associate Professor of Finance. 2000.

Daugthery, Renee A.—BS (Oklahoma State Univ), MS, PhD (ibid); Associate Professor of Human Development and Family Science. 1978.

Davenport, John Lawrence—BA (Univ of Oklahoma), MA (California State Univ, Northridge), PhD (Univ of Kentucky); Visiting Assistant Professor of Geography. 2012.

Davis, Charles Robert—BS (Univ of Oklahoma), MS, PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 1983.

Davis, Craig Allen—BS (Ohio State Univ), MS (Iowa State Univ), PhD (Texas Tech Univ); Associate Professor of Natural Resource Ecology and Management. 2001.

Davis, James A.—BA (Stephen F. Austin State Univ), MA (Miami Univ), PhD (ibid); Associate Professor of Political Science. 1978.

Davis, Kimberly Bryant—BA (Univ of Florida), MEd (ibid.), PhD (Univ of Central Florida); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Davis, Michael Scott—BS (Virginia Technical Univ), DVM (Texas A&M Univ), PhD (John Hopkins Univ); Associate Professor of VBS: Physiological Sciences. 1998.

Davis, Randall L.—BS (Oklahoma State Univ), MS (ibid), PhD (Texas Tech Univ); Associate Professor of CHS: Pharmacology and Physiology. 2004.

Davis, Robert Evan—BS (Oklahoma State Univ.), MBA (ibid.), PhD (ibid); Assistant Professor of Teaching and Curriculum Leadership. 1983.

Deal, Randolph Elliot—BA (State Univ of New York College, Potsdam), MS (State Univ of New York, Albany); Assistant Professor of Educational Studies. 2011.

Dawson, Lionel James—BVSc (Madras Veterinary College), MS (Iowa State Univ); Assistant Professor of Natural Resource Ecology and Management. 2001.

Dawson, Lyle—BS (Miami Univ), PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 1983.

DeFrees, Jason Michael—BS (Univ. of Connecticut), MS (ibid.), PhD (Univ. of Pennsylvania); Professor of Political Science. 2005.

DeFreitas, Jason Michael—BS (Univ. of Connecticut), MS (ibid.), PhD (Univ. of Pennsylvania); Professor of Political Science. 2005.

DeFreitas, Jason Michael—BS (Univ. of Connecticut), MS (ibid.), PhD (Univ. of Pennsylvania); Professor of Political Science. 2005.
Delhoussoye, Ronald D.—BSME (Louisiana Technical Univ); MSME (Georgia Institute of Technology), PhD (Oklahoma State Univ); Adjunct Professor of Mechanical and Aerospace Engineering. 1995.

Delen, Dursun—BS [Istanbul Teknik Üниv], MS (Yıldız Teknik Üниv), PhD (Oklahoma State Univ); Assistant Professor of Management Science and Information Systems. 2002.

Deng, Junpeng—BS (Univ of Science & Technology China), MS (Chinese Academy of Sciences, China), PhD (The Ohio State Univ); Associate Professor of Biochemistry and Molecular Biology. 2007.

Deng, Shining—BS (Southwest Agriculture Univ, China), MS (Oregon State Univ), PhD (Iowa State Univ); Professor of Plant and Soil Sciences. 1998.

Depperschmidt, Chad L.—BS (Oklahoma State Univ), MS (ibid), EdD (ibid); Assistant Professor of Educational Studies. 2009.

DeSilva, Udaya—BSc (Univ of Peradeniya, Sri Lanka), MS (Kansas State Univ), PhD (Washington Univ); Associate Professor of Animal Science. 2001.

Desta, Kefayat Girma—BS (Alemaya Univ), MS (Univ of Guelph), PhD (Oklahoma State Univ); Assistant Professor of Plant and Soil Sciences. 2008.

Devvust, Eric A.—BS (Michigan State Univ), MS (ibid), PhD (Purdue Univ); Professor of Agricultural Economics. 2009.

DeWitt, Christina Mireles—BS (Texas A&M Univ), MS (Oregon State Univ), PhD (ibid); Associate Professor of Animal Science. 2000.

DeYoung, Camille—BS (Oklahoma State Univ), ME (ibid), PhD (ibid); Associate Professor of Industrial Engineering and Management. 1995.

Dickinson, Amber R.—BA (The Univ of Oklahoma), MA (Oklahoma State Univ), PhD (The Univ of Kansas); Clinical Assistant Professor of Political Science. 2011.

Dicks, Michael R.—BS [California Polytechnic State Univ], MS (Univ of Missouri at Columbia), PhD (ibid); Professor of Agricultural Economics. 1989.

Dillworth, Jack W.—BS (California State Polytechnic), MS (St Mary’s Univ), PhD (Univ of Nevada, Reno); Professor of Entomology and Plant Pathology. 1986.

Dionne, Robert Andre—BS [State Univ of New York, Binghamton], MA (Emory Riddle Aeronautical Univ), PhD (Oklahoma State Univ); Visiting Assistant Professor of Educational Studies. 2010.

Dmitriev, Victor A.—BA (Leningrad State Inst of Theater, Music and Cinematography), MA (Univ of California, Los Angeles), PhD (ibid); Professor of Foreign Languages and Literature. 1989.

Doeksen, Gerald Arthur—BS (South Dakota State Univ), MS (Oklahoma State Univ), PhD (ibid); Regents Professor of Agricultural Economics. 1978.

Doherty, William J.—BA [St Paul’s College], MA (Univ of Connecticut), PhD (ibid); Adjunct Associate Professor of Human Development and Family Science. 2010.

Donoghue, Joseph F.—BS (Princeton Univ.), MS (American Univ), PhD (Univ of Southern California); Associate Professor of Geology. 2012.

Doollen, J. Kevin—BS [Southern Illinois Univ], MFA (Univ of Illinois); Professor of Theatre. 2009.

Dotterer, Gary Paul—BS (ibid), MS (ibid), PhD (ibid); Adjunct Professor of Teaching and Curriculum Leadership. 2012.

Doust, Andrew N.—BS (Univ of Sydney), DEAD (Univ of New England), PhD (Univ of Melbourne); Assistant Professor of Botany. 2007.

Doye, Damona G.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Regents Professor of Agricultural Economics. 1986.

Drah, Theodore—BA (Fairfield Univ), MS (Pratt Institute); Associate Professor of Design, Housing and Merchandising. 2000.

Dresser, Michael Edward—BA (Duke Univ), MD (ibid), PhD (ibid); Biochemistry and Molecular Biology. 2011.

Droste, Douglas Paul—BME (The Ohio State Univ), MM (Texas Tech Univ); Associate Professor of Music. 2004.

Du, Yongtao—BA (Henan Univ), MA (Beijing Univ), PhD (Univ of Illinois); Assistant Professor of History. 2009.

Dugat, Danielle Renee—BS (California Polytechnic State Univ), MS (ibid.), DVM (Oklahoma State Univ); Assistant Professor of VBS; Veterinary Clinical Sciences. 2013.

Duhon, Gary—BA (Nicholas State Univ), MA (Louisiana State Univ), PhD (ibid); Associate Professor of Applied Health and Educational Psychology. 2001.

Dunford, Khurran T.—BS (Middle East Technical Univ), MS (Uni of Ankara), PhD (Uni of Alberta); Professor of Industrial Engineering and Agricultural Engineering. 2001.

Dunlap, Riley E.—BA (San Francisco State College), MS (Univ of Oregon), PhD (ibid); Regents Professor of Sociology. 2005.

Dunn, Bruce Lundy—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Arkansas); Assistant Professor of Horticulture and Landscape Architecture. 2009.
Faith, James Robert—BA (Univ of Texas at Austin), MS (Purdue Univ), PhD (ibid); Professor of Economics. 1986.
Fairbanks, Wendelyn Sue—BS (Nebraska Wesleyan Univ), MS (Colorado State Univ), PhD (Univ of Kansas); Assistant Professor of Natural Resource Ecology and Management. 2013.
Fan, Guoliang—BS (Xian Univ of Technology), MS (Xidian Univ of China), PhD (Univ of Delaware); Professor of Electrical and Computer Engineering. 2001.
Fang, Xiang—Associate Professor of Marketing; 2003.
Farris, Rodney Lewis—BS (ibid), BS (ibid), MS (ibid), PhD (ibid); Adjunct Assistant Professor of Plant and Soil Sciences. 2010.
Fathepure, Babu—BS (Karanataka Univ), MS (ibid), PhD (Indian Inst of Science, Bangalore); Associate Professor of Microbiology and Molecular Genetics. 2000.
Fennell, Christopher Joseph—BS (Drake Univ), PhD (Univ. of Notre Dame); Assistant Professor of Chemistry. 2013.
Ferrell, Shannon Lee—BS (Oklahoma State Univ), MS (ibid), JD (Oklahoma City Univ); Assistant Professor of Agricultural Economics. 2008.
Field, Harry L.—BS (Kansas State Univ), MS (ibid), PhD (Univ of Nebraska, Lincoln); Associate Professor of Biosystems and Agricultural Engineering. 1987.
Finch, Bryan Lewis—BS (Univ of Oklahoma), MBA (Arizona State Univ), PhD (Texas A&M Univ); Visiting Professor of Management. 2011.
Finchum, G. Allen—BS (East Tennessee State Univ), MA (Univ of Cincinnati), PhD (Univ of Tennessee); Associate Professor of Geography. 1996.
Finchum, Tanya Ducker—BSW (East Tennessee State Univ), MA (Univ of Cincinnati), MLS (The Univ of Tennessee); Associate Professor of Human Development and Family Science. 2006.
Fink, Kevin Jordan—BS (Truman State Univ), MS (Oklahoma State Univ), PhD (ibid.); Research Associate of Nutritional Sciences. 2011.
Finley Patrick Michael—BA (Univ of Wisconsin at Eau Claire), MFA (Iowa State Univ); Assistant Professor of Art. 2013.
Fischer, Martin Alan—BS (Univ of California, Santa Barbara), MS (Central Washington State Univ), PhD (Univ of Oregon); Professor of Communication Sciences and Disorders. 2006.
Fishbein, Mark—BS (Univ of Illinois), MS (Univ of Arizona), PhD (ibid); Assistant Professor of Botany. 2010.
Fisher, Daniel E.—BA (Carthage College), BS (Univ of Illinois), MS (ibid), PhD (ibid); Professor of Mechanical and Aerospace Engineering. 1999.
Fisher, John Berton—BS (Yale Univ), MS (Case Western Reserve Univ), PhD (ibid.); Assistant Professor of Environmental Sciences. 2012.
Fisher, Lance M.—BS ( Brigham Young Univ), MS (ibid.), PhD (Univ of Arizona). Assistant Professor of Accounting. 2009.
Fisher, William L.—BA (Univ of Louisville), MA (DePauve Univ), PhD (Univ of Louisville); Adjunct Professor of Natural Resource Ecology and Management. 1991.
Fitch, Gerald—BS (California Polytech State Univ), MS (Colorado State Univ), PhD (ibid); Professor of Animal Science. 1987.
Flaherty-Pappas, Karen E.—BS (Providence College), MBA (Suffolk Univ), PhD (Univ of Massachusetts); Assistant Professor of Marketing. 2002.
Fletcher, Jacqueline—BS (Emory Univ), MS (Univ of Montana), PhD (Texas A&M Univ); Regents Professor of Entomology and Plant Pathology. 1893.
Focht, William—BE (Vanderbilt Univ), BS (Univ of Ohio), MA (Oklahoma State Univ), PhD (ibid); Associate Professor of Political Science. 1994.
Ford, Warren Thomas—BA (Wabash College), PhD (Univ of California, Los Angeles); Regents Professor of Chemistry. 1978.
Fort, Douglas—BS (Southwestern College), MS (Oklahoma State Univ), PhD (ibid); Adjunct Associate Professor of Zoology. 1992.
Foster, Gayla Catherine—BM (Univ of Oklahoma), MM (ibid); Visiting Assistant Professor of Teaching and Curriculum Leadership. 2005.
Foutch, John D.—BA (College of William and Mary), MA (Univ of Richmond), PhD (Univ of Maryland, College Park); Associate Professor of Educational Studies. 2013.
Fouch, Gary L.—BS (Univ of Missouri, Rolla), MS (ibid), PhD (ibid); Regents Professor of Chemical Engineering. 1980.
Fowler, Joe Wiley—BS (Oklahoma State Univ), JD (Oklahoma City Univ); Professor of Legal Studies in Business. 1972.
Fox, Gary Alton—BS (Texas A&M Univ), MS (ibid), PhD (Colorado State Univ); Associate Professor of Biosystems and Agricultural Engineering. 2006.
Fox, Stanley F.—BS (Univ of Illinois), MPhil (Yale Univ), PhD (ibid); Regents Professor of Zoology. 1977.
Golland, Scott D.—BA (Univ of Southern Florida), JD (Georgetown Univ Law Center), PhD (Univ of Maryland); Associate Professor of Philosophy 1998.

George, K. M.—BSc (Univ of Madras, India), MSc (ibid), PhD (State Univ of New York at Stony Brook); Professor of Computer Science. 1986.

Gethner, Perry J.—BA (Carleton College), MA (Yale Univ), PhD (ibid); Regents Professor of Foreign Languages and Literature. 1984.

Ghajar, Afshin I.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Regents Professor of Mechanical and Aerospace Engineering. 1981.

Ghosh, Amit—BSc (Imperial College, London), PhD (Nottingham Univ); Professor of Mathematics. 1983.

Giacobbe, Alice C.—BSW (Virginia Commonwealth Univ), MEd (ibid), PhD (The College of William and Mary); Assistant Professor of Teaching and Curriculum Leadership. 2007.

Gibs, Lincoln Alexander—BA (Northwood Univ), MEd (Cleveland State Univ), MPH (Northern Illinois Univ), EdD (ibid); Assistant Professor of Applied Health and Educational Psychology.

Gibson, Rosalind Susan—BSc (Queen Elizabeth College, Univ of London), MS (Univ of California, Los Angeles), PhD (Univ of London); Adjunct Assistant Professor of Nutritional Sciences. 2010.

Giddens, Cheryl LeAnn—BS (Univ of Oklahoma), MS (Univ of Oklahoma Health Science Center), PhD (ibid); Assistant Professor of Communication Sciences and Disorders. 2004.

Gignac, Paul Michael—BS (Univ of Connecticut), PhD (Florida State Univ); Assistant Professor of CHS: Anatomy and Cell Biology. 2013.

Giles, Kristopher L.—BS (Alma College), MS (Iowa State Univ), PhD (ibid); Associate Professor of Entomology and Plant Pathology. 1997.

Gil, Duane A.—BA (Central College, Iowa), MA (Kansas State Univ), PhD (Texas A&M Univ); Professor of Sociology. 2011.

Gilliam, Lyndi Liane—BS (Oklahoma State Univ), DVM (ibid), Diplomate (ibid); Associate Professor of VBS: Veterinary Clinical Sciences. 2009.

Glass, Richard Thomas—BS (Emory Univ), DDS (ibid), PhD (Univ of Chicago); Professor of CHS: Forensic Sciences. 1999.

Good, Carla L.—BS (Friends Univ), MS (Kansas State Univ), PhD (ibid); Associate Professor of Statistics. 1994.

Goedey, Chad—BS (Colorado State Univ), MS (Kansas State Univ), PhD (ibid); Associate Professor of Plant and Soil Sciences. 2006.

Goetsch, Arthur L.—BS (Illinois State Univ), MS (Univ of Missouri), PhD (Univ of Texas, Austin); Associate Professor of Philosophy. 1996.

Goglia, April Dawn—BM (Oklahoma City Univ), MM (Indiana Univ); Associate Professor of Music. 2002.

Gong, Jingyao—BS (China Ocean Univ), MS (Oklahoma State Univ), PhD (ibid); Department of Geology. 2009.

Gonzalez, Cristina Cruz—BA (Yale Univ), MA (Univ of Texas, Austin), MPhil (Cambridge Univ), PhD (Univ of Chicago); Assistant Professor of Art. 2008.

Good, James K.—BSME (Oklahoma State Univ), MME (ibid), PhD (ibid); Professor of Mechanical and Aerospace Engineering. 1980.

Goodson, Leigh B.—BS (Oklahoma State Univ), MS (FI Hays State Univ), PhD (Oklahoma State Univ); Associate Professor of CHS: Forensic Sciences. 2001.

Grabowski, Timothy Brian—BS (Texas A&M Univ), BS (ibid), MS (ibid), PhD (Clemson Univ); Department of Natural Resource Ecology and Management. 2011.

Graham, Emily E.—BA (Smith College), MA (Univ of St Andrews, Scotland), PhD (ibid); Assistant Professor of History. 2013.

Graham, Toni—BA (New College of California), MA (San Francisco State Univ), MFA (ibid); Associate Professor of English. 2000.

Grammer, Michael—BA (Univ of South Florida), MS (Southern Methodist Univ), PhD (Univ of Miami); Professor of Geology. 2012.

Grant, DeMond M.—BA (Pennsylvania State Univ), MA (State Univ of New York, Buffalo), PhD (ibid); Assistant Professor of Psychology. 2009.

Grant, Stephanie Lea—BS (Southern Nazarene Univ), MA (ibid), MS (Oklahoma State Univ), PhD (ibid); Assistant Professor of Psychology. 2012.

Grantham, Richard Allen—BS (Univ of Central Oklahoma), MS (ibid), PhD (Oklahoma State Univ); Adjunct Assistant Professor of Entomology and Plant Pathology. 2003.

Greenebaum, Rebecca L.—BS (Univ of Florida), MS (Univ of Central Florida), PhD (ibid); Assistant Professor of Management. 2010.
Hamilton, Douglas W.—BS (Univ of Arkansas), MS (Iowa State Univ), PhD (Pennsylvania State Univ); Associate Professor of Biosystems and Agricultural Engineering. 1995.

Hamilton, Meredith J.—BS (Univ of Arkansas, Little Rock), MS (Memphis State Univ), PhD (Texas Tech Univ); Associate Professor of Zoology. 1996.

Hammer, Bryan—Iwata—BS (Brigham Young Univ), MS (ibid.), PhD (Univ of Arkansas); Visiting Professor of Management Science and Information Systems. 2013.

Hammer, Tonya R.—BA (Univ of Texas at Arlington), MA (Univ of Mary Hardin - Baylor), PhD (St. Mary's Univ.); Assistant Professor of Applied Health and Educational Psychology. 2013.

Hammon, Tracy Lyn—BS (Colorado State Univ), MS (ibid.), PhD (Oklahoma State Univ); Assistant Professor of Environmental Sciences. 2012.

Hanan, Jay C.—BS (Oklahoma Christian Univ), MS (California Institute of Technology), PhD (ibid); Associate Professor of Mechanical and Aerospace Engineering. 2005.

Hancer, Murat—BS (Dokuz Eylul Univ, Turkey), MS (Univ of New Haven), PhD (The Ohio State Univ); Associate Professor of Hotel and Restaurant Administration. 2006.

Hanks, Reuel R.—BA (Univ of Missouri), MA (Univ of Kansas), PhD (ibid.); Professor of Geography. 1998.

Hansen, Don R.—BS (Brigham Young), PhD (Univ of Arizona); Regents Service Professor of Accounting. 1977.

Hansen, Fredrick D.—BS (Iowa State Univ), MBA (Univ of Nebraska), PhD (ibid.); Associate Professor of Educational Studies. 2001.

Hansen, Holley Elizabeth—BA (Truman State Univ), BS (ibid.), MA, PhD (Univ of Iowa), PhD (ibid.); Visiting Assistant Professor of Political Science. 2013.

Hanson, Gregory J.—BS (Univ of Minnesota), MS (Iowa State Univ), PhD (ibid.); Adjunct Associate Professor of Biosystems and Agricultural Engineering. 1999.

Harinick, Andrew Stephen—BS (Kansan State Univ), MS (ibid.), DVM (ibid); Assistant Professor of VBS: Veterinary Clinical Sciences. 2011.

Hardin, James Albert—BS (Michigan Technological Univ), PhD (Oklahoma State Univ); Adjunct Assistant Professor of Biosystems & Agricultural Engineering. 2013.

Harelend, Geir—BSc (Univ of Minnesota), MS (Univ of Tulsa), PhD (Oklahoma State Univ); Professor of Chemical Engineering. 2014.

Harimkar, Sandip P.—BS (Visvesvaraya National Institute of Technology, India), MS (Indian Institute of Science, India), PhD (Univ of Tennessee); Assistant Professor of Mechanical and Aerospace Engineering. 2009.

Harmon, H. James—BS (Purdue Univ), MS (ibid), PhD (ibid.); Professor of Physics. 1977.

Harper, Joel Thomas—BBA (Harding Univ), PhD (Oklahoma State Univ); Associate Professor of Finance. 2004.

Harriman, Helga H.—BA (Wells College), MA (Oklahoma State Univ), PhD (ibid.); Professor Emeritus of History. 1975.

Harris, Edward L.—BS (Arkansas State Univ), MA (Dallas Theological Seminary), PhD (Texas A&M Univ); Professor of Educational Studies. 1990.

Harrist, Amanda W.—BA (Univ of Texas), PhD (Univ of Tennessee); Associate Professor of Human Development and Family Science. 1998.

Harrist, Ronald Steven—BA (Univ of Texas at Austin), MA (Trinity Univ), PhD (Univ of Tennessee); Associate Professor of Applied Health and Educational Psychology. 1998.

Hart, Timothy A.—BS (Oral Roberts Univ), JD (Univ of Tulsa), PhD (Univ of Oklahoma); Assistant Professor of Management. 2010.

Hartell, Julie Anne—BE (Sherbrooke Univ), ME (McGill Univ), PhD (ibid.); Assistant Professor of Civil & Environmental Engineering. 2013.

Hartnett, David C.—BS (Bucknell Univ), MS (ibid.), PhD (Univ of Illinois at Urbana-Champaign); Adjunct Professor of Natural Resource Ecology and Management. 2009.

Hartshorn, Kelley—I—BS (Univ of Nebraska-Lincoln), MA (ibid.), PhD (ibid.); Assistant Professor of Sociology. 2012.

Hartson, Steven D.—BS (Oklahoma State Univ), PhD (ibid); Research Associate Professor of Biochemistry and Molecular Biology. 2000.

Harati-Marbini, Hamed—BSc (Sharif Univ of Technology), MSc (ibid.), PhD (Rensselaer Polytechnic Institute); Assistant Professor of Mechanical and Aerospace Engineering. 2011.

Hattey, Jeffrey A.—BS (Central Missouri State Univ), MS (Univ of Arkansas), PhD (ibid.); Professor of Plant and Soil Sciences. 1977.

Hauenstein, Robert J.—BS (John Carroll Univ), MS (ibid.), PhD (California Institute of Technology); Associate Professor of Physics. 1991.

Hawkins, Jeffrey M.—BA (Massachusetts College of Liberal Arts), MA (New York Univ), EdD (Univ of San Francisco); Associate Professor of Teaching and Curriculum Leadership. 2006.

Haygood, Christopher D.—BA (Samford Univ), BM (ibid.), MM (Univ of Mississippi), DMA (Univ of Southern California); Assistant Professor of Music. 2012.

Hays-Grudo, Jennifer—BA (Texas Tech Univ), MA (Univ of Houston), PhD (ibid.); Professor of Human Development & Family Science. 2013.

Hebert, Paulette R.—BID (Louisiana State Univ), MS, PhD (ibid); Professor of Design, Housing and Merchandising. 2007.

Heisterkamp, Douglass—BS (Univ of Iowa), MS (Univ of Nebraska, Omaha), PhD (Univ of Nebraska, Lincoln); Associate Professor of Computer Science. 1999.

Heitz, Marty Henry—BA (Lake Forest College), MA (Univ of Hawaii), PhD (ibid.); Associate Professor of Philosophy. 2007.

Hendershot, Marcus E.—BS (Saint Louis Univ), MA, PhD (Washington Univ, St. Louis); Visiting Assistant Professor of Political Science. 2013.

Henderson, Douglas Scott—BS (The Univ of Texas at Austin), MS, PhD (Michigan State Univ), DMA (ibid); Assistant Professor of Music. 2010.

Henderson, Tammy—BA (Louisiana State Univ), MS, PhD (Oregon State Univ); Associate Professor of Human Development and Family Science. 2006.

Hendrix, Charles C.—BS (Kansan State Univ), MS (ibid.), PhD (ibid); Associate Professor of Human Development and Family Science. 1989.

Henley, William J.—BS (Southampton College), PhD (Duke Univ); Professor of Botany. 1992.

Henneberry, David Michael—BS (Univ of Minnesota), MS (ibid.), PhD (Univ of Wisconsin, Madison); Professor of Agricultural Economics. 1984.

Henneberry, Shida Rastegar—BS (National Univ of Iran), MS (Iowa State Univ), PhD (ibid); Regents Professor of Agricultural Economics. 1984.

Hennessey, Thomas C.—BS (Univ of Northern Iowa), PhD (Iowa State Univ); Professor of Natural Resource Ecology and Management. 1976.

Henry, Carolyn S.—BSE (Oklahoma Christian Univ), MS (Oklahoma State Univ), MS (Univ of Tennessee, Knoxville), PhD (ibid.); Professor of Human Development and Family Science. 1988.

Hensg, Sandersh S.—BS (Univ of Mysore, India), MBA (Univ of Saskatchewan), PhD (Univ of Manitoba); Professor of Industrial Engineering and Management. 2013.

Herrmann, Janice R.—BS (Kansan State Univ), MS, PhD (ibid); Professor of Nutritional Sciences. 1985.

Hernandez, Boris Dan—BS (San Diego State Univ), MS, PhD (ibid.); Adjunct Assistant Professor of Civil & Environmental Engineering. 2011.

Hernandez Gifford, Jennifer A—BS (New Mexico State Univ), MS (ibid), PhD (Washington State Univ); Assistant Professor of Animal Science. 2010.

Herrick, Rebekah L.—BS (Nebraska Wesleyan Univ), MA (Tufts Univ), PhD (Univ of Nebraska); Associate Professor of Accounting. 2005.

Herrmann, Don—BS (John Brown Univ), MS (Kansan State Univ), PhD (Oklahoma State Univ); Associate Professor of Accounting. 2005.

Hersey, Douglass—BA (California State Univ, Northridge), MA (Univ of Southern California), PhD (ibid); Associate Professor of Psychology. 1996.

Hess, James Daniel—BS (Northeastern State Univ), MS (ibid), PhD (ibid); Professor of Human Development & Family Science. 2006.

Hickman, Karen R.—BS (Oklahoma State Univ), PhD (Kansas State Univ); Professor of Natural Resource Ecology and Management. 2004.

High, Karen A.—BS (Univ of Michigan), MS (Pennsylvania State Univ), PhD (ibid); Associate Professor of Chemical Engineering. 1991.

High, Martin S.—BS (Pennsylvania State Univ), MS (ibid), PhD (ibid); Associate Professor of Chemical Engineering. 1991.

Hildrebran, Deana A—BS (Univ of Central Oklahoma), MS (ibid), PhD (Oklahoma State Univ); Assistant Professor of Nutritional Sciences. 2007.

Hileman, Mary Esther—BS (Univ of Nebraska, Lincoln); Associate Professor of Computer Science. 1988.

Hixson, Carey A.—BA (Birmingham Polytechnic, UK), MFA (Univ of Oklahoma); Associate Professor of Art. 2013.
Häringhu, Selim Sain — BS (Blacksde Technical Univ; Turkey), MS (Univ of California, Berkeley), PhD (Michigan State Univ); Associate Professor of Natural Resource Ecology and Management. 2000.

Ha, Chhrwan Jyh — BS (National Chiao-Tung Univ), MBA (Univ of Georgia), PhD (Michigan State Univ); Professor of Management Science and Information Systems. 1985.

Haagland, Bruce William — BA (Univ of Louisville), MS (Eastern Kentucky Univ), PhD (Univ of Oklahoma); Individuals Not Employed by OSU of Botany. 2005.

Huberfick, Lawrence L. — BSME (Univ of Missouri-Rolla), MSE (Purdue Univ), PhD (Bid); Professor of Mechanical and Aerospace Engineering. 1987.

Hobson, Dana E. — BS (Baker Univ), MS (Kansas State Univ), MS (Kansas Univ), PhD (Bid); Professor of Construction Management Technology. 1996.

Hoff, Weuter David — BS (Univ of Amsterdam, The Netherlands), PhD (Bid); Professor of Microbiology and Molecular Genetics. 2005.

Hoff, Heidi — BA (Northern Illinois Univ), MA (Bid), MFA (Northwestern Univ); Professor of Theatre. 1988.

Holbrook, Todd C. — DVM (Univ of Georgia); Associate Professor of VBS: Veterinary Clinical Sciences. 2004.

Holcomb, Rodney — BS (Texas A&M Univ), PhD (Bid); Professor of Agricultural Economics. 1997.

Holmes, Tawni Weik — BS (Oklahoma State Univ), MS (Bid), PhD (Bid); Adjunct Professor of Nutritional Sciences. 2013.

Holmes, Terri Sue — BA (Univ of Tulsa), MS (Oklahoma State Univ), PhD (Bid); Adjunct Professor of Environmental Sciences. 2013.

Holzhausen, Derina Rhoda — BA (Univ of Pretoria), MA (Univ of South Africa), PhD (Rand Afrikaans Univ); Professor of Media and Strategic Communications. 2008.

Holynak, Gilbert Reed — BS (Brigham Young Univ), MS (Bid), DVM (Washington State Univ), PhD (Univ of Kentucky); Professor of VBS: Veterinary Clinical Sciences. 1999.

Hong, Yang — BS (Perkins Univ), MS (Bid), PhD (Univ of Arizona); Department of Natural Resource Ecology and Management. 2011.

Hopkins, Andrew — BS (Univ of Missouri, Columbia), MS (Univ of Nebraska), PhD (Bid); Adjunct Assistant Professor of Plant and Soil Sciences. 1993.

Horn, Gerald W. — BS (Texas Tech Univ), MS (Purdue Univ), PhD (Bid); Professor of Animal Science. 1974.

Houston, Mark B. — BS (Southwest Baptist Univ), MBA (Univ of Missouri), PhD (Arizona State Univ); Department of Marketing. 2010.

Hoyt, Mei Wu — BA (Qiaihar Univ, China), MS (Univ of Nebraska), PhD (Bid); Assistant Professor of VBS: Veterinary Clinical Sciences. 2013.

Hoyt, Peter R. — BS (Univ of Houston), MS (Bid), PhD (Univ of Texas Medical Branch); Research Associate Professor of Biochemistry and Molecular Biology. 2005.

Hsu, Po-Siu Paul — BS (National Taiwan Univ), MLA (Cornell Univ); Associate Professor of Horticulture and Landscape Architecture. 1990.

Hu, Jingtong — BS (Shandong Univ), MS (Bid), PhD (Bid); Assistant Professor of Electrical & Computer Engineering. 2013.

Huang, Yinchuan — BS (Huazhong Agricultural Univ), MS (Bid), PhD (Michigan Technological Univ); Adjunct Professor of Natural Resource Ecology and Management. 1994.

Hubbard, Todd Phillip — BA (Oklahoma State Univ), MS (Embry-Riddle Aeronautical Univ), PhD (Bid); Associate Professor of Educational Studies. 2005.

Hubbs-Tait, Laura — BA (Univ of Michigan), MS (Boston Univ), PhD (Bid); Regents Professor of Human Development and Family Science. 1992.

Hughes, Patricia Lynn — BS (Texas Christian Univ), MA (Texas Woman's Univ), PhD (Bid); Associate Professor of Applied Health and Educational Psychology. 2002.

Huhne, Raymond L. — BS (Purdue Univ), MS (Univ of Illinois), PhD (Iowa State Univ); Professor of Biosystems and Agricultural Engineering. 1980.

Hull, Debra Flint — BA (Univ of Tulsa), MS (Oklahoma State Univ), PhD (Bid); Adjunct Associate Professor of Applied Health and Educational Psychology. 2010.

Humphrey, Stephen Erik — BS (James Madison Univ), PhD (Michigan State Univ); Assistant Professor of Management. 2012.

Hunger Robert M. — BS (Colorado State Univ), MS (Bid), PhD (Oregon State Univ); Professor of Entomology and Plant Pathology. 1982.

Hunt, Sherry Lynn — BS (Oklahoma State Univ), MS (Bid), PhD (Colorado State Univ); Adjunct Assistant Professor of Biosystems and Agricultural Engineering. 2010.

Huston, James L. — BA (Denison Univ), MA (Univ of Illinois), PhD (Bid); Regents Professor of History. 1980.

Hutchens, Chrinwell G. — BS (South Dakota State Univ), MS (Bid), PhD (Univ of Missouri); Associate Professor of Electrical and Computer Engineering. 1986.

Hyle, Adrienne Evans — BA (Kansas State Univ), MA (Univ of Kansas), PhD (Kansas State Univ); School of Educational Studies. 1987.

Igrek, Apple Zefkulas — BA (Michigan State Univ), MA (Vanderbilt Univ), PhD (Bid); Assistant Professor of Philosophy. 2012.

Iizuka, Yoshinori — BS (The Univ of Tokyo), ME (Bid), PhD (Bid); School of Industrial Engineering and Management. 2010.

Ingalls, Richiki G. — BS (East Texas Baptist College), MS (Texas A&M Univ), PhD (Univ of Texas); Associate Professor of Industrial Engineering and Management. 2000.

Ireland, Timothy C. — BS (Phillips Univ), MS (Oklahoma State Univ), PhD (Bid); Professor of Management Science and Information Systems. 1978.

Ivey, Toni Ann — BS (Texas A&M Univ), MEd (Bid), PhD (Bid); Assistant Professor of Teaching and Curriculum Leadership. 2010.

Jackson, Todd A. — DVM (Purdue Univ); Associate Professor of VBS: Veterinary Clinical Sciences. 2012.

Jacobs, William H. — BA (Fairmont State College), MA (Pennsylvania State Univ), PhD (Univ of Wisconsin); Regents Professor of Mathematics. 1982.

Jacob, James Darin — BS (Univ of Oklahoma), MS (Univ of California), PhD (Bid); Professor of Mechanical and Aerospace Engineering. 2006.

Jacobs, Sue C. — BA (Antioch College), MA (Vermont College/ Norwich Univ), PhD (Univ of Southern Mississippi); Associate Professor of Applied Health and Educational Psychology. 2001.

Jacobson, Bert H. — BS (Oklahoma State Univ), MEd (Northwestern Oklahoma State Univ), Edd (Bid); Professor of Educational Studies. 1980.

Jahnahr, Farshid — BS (Teheran Univ.), EDS (Bid), EDD (Oklahoma State Univ); Adjunct Assistant Professor of Sociology. 2011.

Jaiwal, Priyank — BS (Indian Institute of Technology, India), MA (Rice Univ), PhD (Bid); School of Geology. 2010.

Jambunathan, Narbu — BS (Tamil Nadu Agricultural Univ), MS, PhD (Pennsylvania State Univ); Assistant Professor of Biochemistry and Molecular Biology. 2010.

Jann, Henry W. — BA (Bucknell Univ), MS (Brockport State College), DVM (Cornell Univ); Associate Professor of VBS: Veterinary Clinical Sciences. 2002.

Jaroni, Divya — BS (Bid), BEd (Devi Ahilya Univ, India), MS (Univ of Nebraska-Lincoln), PhD (Bid); Assistant Professor of Animal Science. 2012.

Jaworski, Deborah — BS (The Ohio State Univ), MS (Oklahoma State Univ), PhD (The Ohio State Univ); Assistant Professor of Entomology and Plant Pathology. 2007.

Jenkins, Christopher — BA (Northeastern State Univ), MEd (Univ of Oklahoma), PhD (Oklahoma State Univ); Assistant Professor of Educational Studies. 2010.

Jenswold, Joel M. — BS (Univ of Wisconsin), MA (Bid), MPhil (Bid), PhD (Bid); Associate Professor of Political Science. 1984.

Jeung, Hyungseok (David) — BS (Seoul National Univ), MS (Purdue Univ), PhD (Bid); Associate Professor of Civil and Environmental Engineering. 2006.

Jeyasingh, Punanid — BS (Madras Christian College), MS (Pondicherry Univ), MS (Murray State Univ), PhD (Univ of Oklahoma); Assistant Professor of Zoology. 2009.

Jiang, Ji Hoon — BBA (Korea Univ., South Korea), MS (Stanford Univ.), PhD (Univ of Colorado at Boulder); Assistant Professor of Marketing. 2014.

Jiang, Hao — BS (East China Univ of Chemical Technology), PhD (Kansas State Univ); Professor of Entomology and Plant Pathology. 2000.

Jiang, Yonglin — PhD (Univ of Minnnesota); Assistant Professor of History. 2001.

Jin, Byungho — BS (Yonsei Univ), MS (Bid), PhD (Bid); Professor of Design, Housing and Merchandising. 2001.

Jin, Xiaoliang — BS (Beihang Univ., China), MS (Bid), PhD (University of British Columbia); Assistant Professor of Mechanical and Aerospace Engineering. 2013.

Jinks, Jodi — BA (Univ of Missouri), MFA (Univ of Virginia); Assistant Professor of Theatre. 2011.

Job, Jennifer Grace — BA (College of Charleston), MA (Univ of North Carolina at Chapel Hill), PhD (Bid); Assistant Professor of Teaching and Curriculum Leadership. 2013.

Joern, Anthony — BS (Univ of Wisconsin, Madison), PhD (Univ of Texas at Austin); Adjunct Professor of Natural Resource Ecology and Management. 2007.

Johannes, Arland H. — BS (Illinois State Univ), MSE (West Virginia Univ), PhD (Univ of Kentucky); Professor of Chemical Engineering. 1984.

Johansen, Thomas C. — BS (Howard Univ), MEd (Bid), PhD (Bid); Assistant Professor of Wildlife and Aquatic Sciences. 2007.

John, Gilbert H. — BS (Oklahoma State Univ), PhD (Bid); Associate Professor of Microbiology and Molecular Genetics. 1995.

Johns, Carol — BS (Oklahoma State Univ), MS (Bid), PhD (Arizona State Univ); Associate Professor of Accounting. 1992.
Johnson, Celeste Nichol—BA (Univ of Illinois, Urban-Champaign), MM (Eastman School of Music); Associate Professor of Music. 2005.

Johnson, Christine A.—BA (Alma College), MS (Iowa State Univ.), PhD (ibid.); Associate Associate Professor of Human Development and Family Science. 2009.

Johnson, Eileen McGoey—BS (Oklahoma State Univ.), MS (ibid.), DVM (ibid.), PhD (ibid.); Associate Professor of VBS: Pathobiology. 2007.

Johnson, Jesse—BA (Middlebury College), PhD (Univ of California, Davis); Assistant Professor of Mathematics. 2009.

Johnson, Louis G.—BS (Massachusetts Institute of Technology), MS (ibid.), PhD (ibid.); Associate Professor of Electrical and Computer Engineering. 1979.

Johnson, Mark Z.—BS (Oklahoma State Univ.), MS (ibid.), PhD (Kansas State Univ.); Associate Professor of Animal Science. 1985.

Johnson, Scott Gerald—BS (Univ of Colorado), MBA (Michigan State Univ.), PhD (Univ of Wisconsin); Associate Professor of Management. 2005.

Johnston, Jan H.—BS (Vakoc State Univ), MEd (Univ of Texas, Austin), PhD (Univ of Texas Arlington); Assistant Professor of Human Development and Family Science. 2007.

Jones, Carol L.—BS (Oklahoma State Univ), PhD (ibid.); Associate Professor of Biotecnsystems and Agricultural Engineering. 2006.

Jones, Edward—BA (Central Connecticut), MA (Ohio Univ.), PhD (ibid.); Associate Professor of English. 1987.

Jones, Jennifer Lynn—BS (Oklahoma State Univ.), MS (ibid.), PhD (ibid.); Visiting Assistant Professor of Human Development and Family Science. 2011.

Jones, Nigel R.—BA (Univ of Newcaste-Upon-Tyne), BArch (ibid); Professor of Architecture. 1987.

Jones, Rodney D.—BS (Kansans State Univ), MS (ibid.), PhD (Virginia Technical Univ.); Adjunct Assistant Professor of Agricultural Economics. 2010.

Jordan, Stevra —BS (Slippery Rock Univ.), MS (Western Illinois Univ), RD (Indiana Univ.); Professor of Applied Health and Educational Psychology. 1997.

Jordan, Jerry J.—BS (Central State Univ), MS (Univ of Oklahoma), EdD (Temple Univ); Associate Professor of Applied Health and Educational Psychology. 1984.

Ju, Ning—MS (Indiana Univ), PhD (ibid.); Associate Professor of Mathematics. 2003.

Kable, Anthony C.—BS (The Australian National Univ.), MS (Oxford Univ.), PhD (Oklahoma State Univ.); Associate Professor of Mathematics. 2001.

Kahn, Brian Aleck—BS (Delaware Valley College), MS (Cornell Univ), PhD (ibid.); Professor of Horticulture and Landscape Architecture. 1982.

Kaipa, Ramesh—BSc (Bangalore Univ., India), MA (Univ of Mangalore, India), PhD (Univ of Canterbury New Zealand); Assistant Professor of Communications Sciences and Disorders. 2012.

Kak, Subhash—BS (Jammu and Kashmir Univ), PhD (Indian Institute of Tech, Delhi); Regents Professor of Computer Science. 2007.

Kakani, Vijaya Gopal—BS (Andhra Pradesh Agricultural Univ., Hyderabad, India), MS (ibid.), PhD (Univ of Reading, Reading, United Kingdom); Assistant Professor of Plant and Soil Sciences. 2008.

Kalkan, Ali Kaan—BS (Bogazici Univ, Turkey), MS (Penn State Univ), PhD (ibid.); Assistant Professor of Mechanical and Aerospace Engineering. 2006.

Kamath, Manjunath—BS (Indian Institute of Technology), ME (Indian Institute of Science), PhD (Univ of Wisconsin); Professor of Industrial Engineering and Management. 1989.

Kaner, Faryl L.—BA (San Diego State Univ.), MEd (Univ of San Diego), PhD (Arizona State Univ.); Assistant Professor of Teaching and Curriculum Leadership. 2011.

Kang, Mihyun—BS (Yonsei Univ, Korea), MA (Iowa State Univ.), PhD (Univ of Minnesota); Associate Professor of Design, Housing and Merchandising. 2010.

Kang, Tony—BSA (Korea Univ), MBA (McGill Univ), PhD (Univ of Illinois); Associate Professor of Accounting. 2009.

Kapil, Anil—BS (Jagiellonian Univ.), MS (Madurava Univ.); Associate Professor of CHS: Family Medicine. 2009.

Kaur, Ashpreet Singh—BS (Government Women's College, India), MS (Kashmir Univ, India), PhD (Delhi Univ, India); Associate Professor of CHS: Biochemistry and Microbiology. 2003.
Kolark, William J.—BS (Louisiana State Univ), MS (ibid), PhD (Oklahoma State Univ); Professor of Industrial Engineering and Management. 1999.

Kong, Zhenyu (James)—BS (Harbin Institute of Technology, China), MS (ibid), PhD (Univ of Wisconsin); Assistant Professor of Industrial Engineering and Management. 2006.

Konz, Suzanne M.—BS (Iowa Wesleyan College), MS (Indiana Univ), PhD (Brigham Young Univ); Assistant Professor of Applied Health and Educational Psychology. 2007.

Krasinski, Jerry S.—MS (Univ of Warsaw), PhD (ibid); Professor of Electrical and Computer Engineering. 1990.

Krebs, Nancy F.—BS (Iowa State Univ), MS (Univ of Maryland), MD (Univ Colorado School of Medicine); Department of Nutritional Sciences. 2009.

Krebhbil, Clinton—BS (Kansas State Univ), PhD (ibid), PhD (Univ of Nebraska); Professor of Animal Science. 2000.

Krebhbil, Timothy L.—BS (Illinois State Univ), MS (Purdue Univ), PhD (ibid); Professor of Finance. 1989.

Krishnan, Sadagopan—BSc (M.S. Univ., India), MSc (M.K. Univ., India), PhD (Univ of Connecticut); Assistant Professor of Chemistry. 2012.

Kropp, Johnnie Robert—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Animal Science. 1975.

Krumm, Bernita L.—BA (South Dakota State Univ), MA (ibid), MS (ibid), EdD (ibid), PhD (Univ of Nebraska); Assistant Professor of Educational Studies. 2005.

Krzmarzick, Mark J.—BS (Oklahoma State Univ), MS (Univ of Minnesota), PhD (ibid); Assistant Professor of Civil & Environmental Engineering. 2013.

Ku, JaEun—PhD (Cornell Univ); Assistant Professor of Mathematics. 2007.

Kumar, Ajay—B.Tech (Indian Institute of Technology, Kharagpur), MS (Univ of Nebraska, Lincoln), PhD (ibid); Assistant Professor of Biosystems and Agricultural Engineering. 2010.

Kutz, Mary N.—BBA (Univ of Central Oklahoma), MBA (ibid), EdD (Oklahoma State Univ); Associate Professor of Educational Studies. 1999.

Kuvibidila, Solo—BA (ブランドイン州), MS (Massachusetts Institute of Technology), PhD (ibid); Associate Professor of Nutritional Sciences. 2006.

Kymes, Angel D.—BA (Harding Univ.), MLIS (Univ of Oklahoma), PhD (Oklahoma State Univ); Assistant Professor of Educational Studies. 2012.

LaBib, Chalmer—BA (Ohio State Univ), MA (Univ of Tennessee), PhD (Univ of Texas, Austin); Associate Professor of Management. 1994.

Lacombe, Veronique A.—DVM (National Veterinary School of Maisons-Alfort), PhD (The Ohio State Univ.); Associate Professor of VBS: Physiological Sciences. 2012.

Laey, Melvin Bud—BS (California State Univ), MS (ibid), DBA (Univ of Washington); Associate Professor of Psychology. 2000.

Lahiri, Bidisha—BSc (Calcutta Univ), MS (Indian Statistical Institute), PhD (Univ of North Carolina, Chapel Hill); Associate Professor of Economics, 2009.

Lalman, David—BS (Kansas State Univ), MS (Montana State Univ), PhD (Univ of Missouri); Associate Professor of Animal Science. 1996.

Lamphere-Jordan, Patricia M.—BS (Univ of North Texas), MS (Texas A&M, Corpus Christi), EdD (Univ of Houston); Associate Professor of Teaching and Curriculum Leadership. 1997.

Lancaster, Sarah R.—BS (Univ of Missouri), MS (North Carolina State Univ), PhD (Texas A&M Univ); Assistant Professor of Plant and Soil Sciences. 2009.

Landry, Lorraine Y.—BA (Trent Univ), MA (Univ of Toronto), PhD (ibid); Assistant Professor of Philosophy. 2005.

Lane, Mona—BS (Univ of Oklahoma), MS (Oklahoma State Univ), PhD (ibid); Assistant Professor of Human Development and Family Science. 1971.

Lanners, Thomas Martin—BM (Florida State Univ), MM (ibid), DMA (Eastman School of Music); Professor of Music. 1995.

Lansford, Notie Harold—BS (Texas A&M Univ), MS (ibid), PhD (ibid); Professor of Agricultural Economics. 1991.

Lavaud, Daniel Albert—BS (Univ of Puerto Rico), MS (Florida International Univ), PhD (Univ of Pittsburgh); Assistant Professor of Geology. 2012.

Larrañaga, Michael D.—BS (Oklahoma State Univ), MS (Univ of Houston), PhD (Texas Tech Univ); Associate Professor of Engineering Technology Division. 2009.

Lason, Mary Ann—BA (Harvard Univ), MA (Brown Univ), PhD (ibid); Professor of History. 2010.

Lazzerete, Robert—BS (Wabash College), MS (Georgia Institute of Technology), PhD (Pennsylvania State Univ); Associate Professor of Human Development and Family Science. 2006.

Latino, Carl D.—BS (The City College of the City Univ of New York), MS (Pennsylvania State Univ), PhD (ibid); Associate Professor of Electrical and Computer Engineering. 1986.

Lavery, Jason E.—BA (Univ of California at Berkeley), MA (Yale Univ), MPhil (ibid), PhD (ibid); Associate Professor of History. 1997.

Lavine, Barry Kenneth—BA (Temple Univ), MS (Ohio State Univ), PhD (Pennsylvania State Univ); Associate Professor of Chemistry. 2004.

Lawler, James J.—BA (Univ of Pittsburgh), MPA (ibid), MA (ibid), JD (Harvard Univ), PhD (ibid); Professor Emeritus of Political Science. 1970.

Lawson, Bradley P.—BA (Drury Univ), MA (Univ of Houston), PhD (Texas A&M Univ); Adjunct Assistant Professor of Accounting. 2012.

Lehl, Jim—BA (San Diego State Univ), MA (ibid), PhD (Univ of California, San Diego); Assistant Professor of Mathematics. 2013.

Lee, Hye-Joo—BS (Dukung Women's Univ, Korea), MS (Michigan State Univ), PhD (Univ of Tennessee, Knoxville); Assistant Professor of Design, Housing and Merchandising. 2008.

Lee (McKern), Jacqueline Amber—BS (Arkansas Tech Univ), MS (Univ of Arkansas), PhD (ibid.); Assistant Professor of Entomology & Plant Pathology. 2013.

Lee, Jin Kyu—BBA (YONSEI Univ, Korea), MS (Griffith Univ, Australia), PhD (State University of New York, Buffalo); Assistant Professor of Management Science and Information Systems. 2009.

Leffingwell, Thad R.—BA (Southwestern College), MS (Univ of Arizona), PhD (Univ of Washington); Associate Professor of Psychology. 2000.

Leider, Charles L.—BS (Michigan State Univ), MCP ( Yale Univ), PhD (Oklahoma State Univ); Professor of Horticulture and Landscape Architecture. 1985.

Leong, Jerrold K.—BS (Cornell Univ), MS (Univ of Hawaii), MPS (ibid), PhD (Florida International Univ); PhD (ibid); Associate Professor of Hotel and Restaurant Administration. 1985.

Leslie, Jr, David M.—BA (Prescott College), MS (Univ of Nevada), PhD (Oregon State Univ); Adjunct Professor of Natural Resource Ecology and Management. 1995.

Leung, Ying Tat—BS (Univ of Hong Kong), MS (Univ of Wisconsin-Madison), PhD (ibid.); Adjunct Professor of Industrial Engineering and Management. 2014.

Lewis, Bobbi Kay—BS (Oklahoma State Univ), MS (ibid); Associate Professor of Media and Strategic Communications. 2007.

Lewis, David K.—BS (Univ of Minnesota), MFS (Yale Univ), PhD (Oxford Univ); Associate Professor Emeritus of Natural Resource Ecology and Management. 1982.

Lewis, Lisa—BA (Virginia Intermont College), MFA (Univ of Iowa), PhD (Univ of Houston); Professor of English. 1995.

Lewis, Lynn C.—BA (Occidental College), MA (San Francisco State Univ), PhD (Univ of Oklahoma); Assistant Professor of English. 2010.

Lewis, Michael Phil—BS (North Carolina State Univ), MS (ibid), PhD (ibid); Assistant Professor of Civil and Environmental Engineering. 2010.

Ley, Tyler—BS (Oklahoma State Univ), MS (Univ of Texas at Austin), PhD (ibid); Assistant Professor of Civil and Environmental Engineering. 2007.

Li, Weiping—BS (Dalian Institute of Technology), PhD (Michigan State Univ); Associate Professor of Mathematics. 1995.

Liang, Biao—BA (Foreign Affairs College), MS (Arizona State Univ), PhD (ibid); Associate Professor of Sociology. 2005.

Liang, Ye—BS (Nanjing Univ, China), MA (Univ of Missouri, Columbia), PhD (ibid.); Assistant Professor of Statistics. 2012.

Lightfoot, Dale Robert—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Colorado, Boulder); Professor of Geography. 1994.

Ligon, Day B.—BS (Lewis and Clark College), MS (Oklahoma State Univ), PhD (ibid); Adjunct Professor of Zoology. 2013.

Lilley, David G.—BSc (Sheffield Univ), MSc (ibid), PhD (ibid); Assistant Professor of Philosophy. 2005.
Liu, Lin—BS (Univ of Science and Technology), PhD (Shanghai Institute of Biochemistry); Regents Professor of VBS: Physiological Sciences. 2000.

Liu, Tieming—BS (Tsinghua Univ.), MS (Northwestern Univ.), MS (Tsinghua Univ., China), PhD (Massachusetts Institute of Technology); Associate Professor of Industrial Engineering and Management. 2005.

Liu, Yingmei—BS (Jilin Univ China), MS (ibid), MS (Univ of Pittsburgh), PhD (ibid); Assistant Professor of Physics. 2010.

Lloyd, Pamela Goodrick—BA (Univ of Missouri), PhD (ibid); Assistant Professor of VBS: Physiological Sciences. 2007.

Loeffert, Jeffrey John—BM (Northwestern Univ.), MM (ibid), DMA (Michigan State Univ); Assistant Professor of Music. 2010.

Loff, Jon Michael—BA (Univ of Oklahoma), MS (ibid), EdD (Oklahoma State Univ); Assistant Professor of Educational Studies. 2012.

Logan, Michael Farley—BA (Univ of Arizona), MA (ibid), PhD (ibid); Professor of History. 1994.

Long, Blaine C.—BS (Millikin Univ), MS (Indiana State Univ), PhD (Brigham Young Univ); Associate Professor of Applied Health and Educational Psychology. 2009.

Long, James M.—BS (Southwest Missouri State Univ), MS (ibid), PhD (Oklahoma State Univ); Adjunct Assistant Professor of Natural Resources and Management. 2010.

Long, Michael A.—BA (Bucknell Univ), MA (Univ of New Orleans), PhD (Colorado State Univ); Assistant Professor of Sociology 2010.

Lopez-Compton, Refugia Lanette—BM (Univ of Nebraska), MM (Univ of North Texas); Associate Professor of Music. 2005.

Loss, Scott R. — BS (Univ of Wisconsin - Stevens Point), MS (Univ of Illinois), PhD (Univ of Minnesota); Assistant Professor of Natural Resource Ecology and Management. 2013.

Love, Brenda Cheryl—BS (East Central Univ.), DVM (Oklahoma State Univ), PhD (Univ of California, Davis); Assistant Professor of VBS: Pathobiology. 2009.

Love, Ross O.—BS (Cornell Univ), MS (Michigan State Univ), PhD (ibid); Professor of Agricultural Economics. 1982.

Lovem, Matthew R.—BS (Duke Univ), PhD (Virginia Technical Univ); Associate Professor of Zoology 2003.

Lowery, John—BA (Univ of Virginia), MED (Univ of South Carolina), PhD (Bowling Green State Univ); Associate Professor of Educational Studies. 2006.

Lucas, Edrilan A.—BS (Univ of Santo Tomas, Manila), PhD (Oklahoma State Univ); Assistant Professor of Nutritional Sciences, 2004.

Lucas, Laurie A.—IBA (Univ of Oklahoma), MLS (ibid), JD (ibid); Assistant Professor of Economics. 2007.

Lucca, Don A.—BS (Cornell Univ), MSc (Princeton Univ), PhD (Rensselaer Polytechnical Institute); Regents Professor of Mechanical and Aerospace Engineering. 1990.

Luse, Andrew W.—BA (Simpson College, Iowa), MBA, (Iowa State Univ), MS (ibid.), MS (ibid.), PhD (ibid.), Assistant Professor of Management Science and Information Systems. 2013.

Lusk, Japon Lee—BS (Texas Tech Univ), PhD (Kansas State Univ); Professor of Agricultural Economics. 2005.

Luttberg, Bernard T.—BA (Univ of California), PhD (ibid); Assistant Professor of Zoology 2009.

Lutter, Erik Idiok—BS (Univ of Lethbridge), MSc (Univ of Calgary), PhD (ibid); Assistant Professor of Microbiology & Molecular Genetics. 2013.

 Lynch, Thomas B.—BS (Virginia Polytechnic Institute and State University), MS (ibid), PhD (Purdue University); Professor of Natural Resource Ecology and Management. 1982.

 Lyon, Melinda Wallace—BS (ibid), MS (Univ of Central Oklahoma), PhD (Oklahoma State Univ); Assistant Professor of Design, Housing and Merchandising. 2010.

Ma, Li—BS (Dalain Light Industry Institute, China), PhD (Purdue Univ); Assistant Professor of Entomology and Plant Pathology. 2010.

MacAllister, Charles G.—DWM (Auburn Univ); Professor of VBS: Veterinary Clinical Sciences. 1979.

Mackown, Charles—BS (Ft Lewis College), MS (Univ of Arizona), PhD (ibid); Adjunct Professor of Plant and Soil Sciences. 1999.

Madihally, Sundaranjan V.—BE (Bangalore Univ), MS (Wayne State), PhD (ibid); Associate Professor of Chemical Engineering. 2002.

Mafl Gretchen Hilton—BS (Texas Tech Univ), MS (Colorado State Univ), PhD (Texas Tech Univ); Associate Professor of Animal Science. 2006.

Maloy, Jason Stuart—BA (Brown Univ), MPhil (Univ of Cambridge), PhD (Harvard Univ); Associate Professor of Political Science. 2005.

Mandelvile, Mary—BS (Purdue Univ), MS (ibid), EdD (Oklahoma State Univ); Associate Professor of Psychology 1985.

Maness, Niels O.—BS (Texas A&M Univ), PhD (ibid); Assistant Professor of Horticulture and Landscape Architecture. 1990.

Mannor, Michael Joseph—BS (Aquinas College), MBA (Grand Valley State Univ), PhD (Michigan State Univ); Adjunct Professor of Management. 2013.

Manys Khaled—BA (Cairn Univ), MS (Helwan Univ), PhD (Illinois Institute of Technology); Associate Professor of Architecture. 2002.

Mantini, Lisa A.—BS (Univ of Pittsburgh), MA (Harvard Univ), PhD (ibid); Professor of Mathematics. 1985.

Manza, L. Lee—BA (Oklahoma State Univ), MBA (ibid), PhD (ibid); Professor of Marketing. 1975.

Max, Yu (Jessie)—BS (Tsinghua Univ, China), MS (ibid), PhD (Massachusetts Institute of Technology); Assistant Professor of Biosystems and Agricultural Engineering. 2006.

Marek, Stephen M.—BS (Univ of Missouri), MS (ibid), PhD (Univ of California, Davis); Associate Professor of Entomology and Plant Pathology. 2003.

Marks, Steven Ken—BS/Ed (Emporia State Univ), MS, EdD (Oklahoma State Univ); Professor of Educational Studies. 1976.

Martin, Bjorn C.—BS (Univ of Umea, Sweden), PhD (ibid); Professor of Plant and Soil Sciences. 1989.

Martin, Dennis L.—BS (Univ of Illinois), MS (ibid), PhD (ibid); Professor of Horticulture and Landscape Architecture. 1990.

Mason, Marlys—BS (Minnesota State Univ), MBA, (ibid), PhD (Univ of Utah); Associate Professor of Marketing. 2002.

Masters, Brenda Jenole—BS (Oklahoma State Univ), MA (Univ of Georgia), MS (Oklahoma State Univ), PhD (ibid); Associate Professor of Statistics. 1987.

Mateescu, Raluca—BS (Bucharest Univ), MS (Cornell Univ), PhD (ibid); Assistant Professor of Animal Science. 2006.

Matser, Nicholas F.—BS (Univ of Missouri), PhD (Univ of California, Berkeley); Associate Professor of Chemistry. 1998.

Matherly, James Edward—BS (Univ of Michigan), PhD (Univ of Maryland); Assistant Professor of Marketing. 2012.

Matts, Robert L.—BS (Hamline Univ), PhD (Univ of Wisconsin, Madison); Regents Professor of Biochemistry and Molecular Biology. 1985.

Mavlyutov, Anvar—MS (Novosibirsk State Univ, Russia), PhD (Univ of Massachusetts, Amherst); Assistant Professor of Mathematics. 2004.

Maxwell, Lara Kathleen—DVM (Univ of Florida), PhD (ibid); Associate Professor of VBS: Physiological Sciences. 2003.

May James Robert—BA (Oklahoma Baptist Univ), MA (Southern Baptist Theological Seminary), PhD (Oklahoma State Univ); Adjunct Assistant Professor of Applied Health and Educational Psychology. 2010.

Mayner, Robert John—BA (Univ of Michigan), MA (San Francisco State Univ), PhD (Northwestern); Professor of English. 1991.

Mayfield, Blayne E.—BS (Bucknell Univ), MS (ibid), PhD (ibid); Professor of English. 1991.

Mayfield, Blayne E.—BS (Bucknell Univ), MS (ibid), PhD (ibid); Professor of English. 1991.

McCann, Melinda H.—BA (Univ of Missouri), PhD (Univ of South Carolina); Assistant Professor of Psychology. 1998.

McCarter, Suzanne—BA (Lewis & Clark College), PhD (Duke Univ); Adjunct Assistant Professor of Botany 2001.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.

McCaw, Karen—BS (Baylor Univ), MS (Texas Tech Univ), PhD (Texas A&M Univ); Professor of Zoology 1987.
McGee, Ronald Timothy—BS (Arizona State Univ), MA (Northern Arizona Univ), PhD (ibid); Professor of History. 2009.

McCubbin, Tipton F.—BS (Oklahoma State Univ), MED (Phillips Univ), JD (Univ of Oklahoma); Associate Professor of Legal Studies in Business. 1986.

McFarlane, Dianne—BS (Clemson Univ), MS (Univ of Georgia), DVM (Univ of California at Davis), PhD (Univ of Prince Edward Island); Associate Professor of VBS: Physiological Sciences. 2005.

McGaha, Valerie Kay—BS (Texas Tech Univ), MS (ibid), PhD (ibid); Assistant Professor of Applied Health and Educational Psychology. 2007.

McGinn, William George—BA (Univ of California at Davis), MS (Univ of Arkansas), PhD (ibid); Associate Professor of Horticulture and Landscape Architecture. 2004.

McGrew, Kevin S.—BA (Moorhead State Univ), MS (ibid), PhD (Univ of Minnesota); Adjunct Professor of Applied Health and Educational Psychology. 2014.

McGuire, John F.—BS (Northwest Missouri State Univ), MA (ibid), PhD (Univ of Missouri); Assistant Professor of Media and Strategic Communications. 2002.

McIntyre, Nancy E.—BS (Univ of Georgia), MS (ibid), PhD (Colorado State Univ); Adjunct Professor of Zoology. 2013.

McKeever, Stephen W.—BS (Univ College of North Wales, Bangor), MS (ibid), PhD (ibid); Regents Professor of Physics. 1983.

McKinley, Craig R.—BS (Oklahoma State Univ), MAG (Texas A&M Univ), PhD (ibid); Professor of Natural Resource Ecology and Management. 2008.

McKinnon, Lori—BS (Arizona State Univ), MS (Oklahoma State Univ), PhD (Univ of Oklahoma); Associate Professor of Media and Strategic Communications. 2005.

McLarney, Rose Elizabeth Ervin—BA (Warren Wilson College), MBA (ibid); Assistant Professor of English. 2013.

McLaughlin, Heather Rae—BA (Univ of Maine), PhD (Univ of Minnesota); Assistant Professor of Sociology. 2013.

McMurry, Scott T.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Zoology. 2007.

McNamara, Gerry Michael—BBA (Univ of San Diego), MBA (ibid), PhD (Univ of Nebraska); Assistant Professor of Management. 2012.

McTernan, William F.—BS (Univ of Wyoming), MS (ibid), PhD (Virginia Polytechnic Institute and State Univ); Professor of Civil and Environmental Engineering. 1985.

Medlin, Case R.—BS (Oklahoma State Univ), MS (ibid), PhD (Mississippi State Univ); Associate Professor of Plant and Soil Sciences. 2002.

Meek, Gary K.—BBA (Texas Christian Univ), MBA (ibid), PhD (Univ of Washington); Professor Emeritus of Accounting. 1980.

Meek, William D.—BS (Baylor Univ), PhD (Baylor College of Dentistry); Professor of CHS: Anatomy and Cell Biology. 1985.

Meinke, David W.—BA (College of Wooster), PhD (Yale Univ); Regents Professor of Botany. 1982.

Melnikov, James H.—BS (Oklahoma State Univ), DVM (ibid), PhD (Washington State Univ); Professor of VBS: Pathobiology 1992.

Melancon, Celinda Reese—BS (Abilene Christian Univ.), MA (Univ of Richmond), PhD (Mississippi State Univ); Assistant Professor of Educational Leadership. 1992.

Meltzer, Ulrich—BS (Univ of Chicago), PhD (Michigan State Univ); Regents Professor of Biochemistry and Molecular Biology. 1975.

Meloak, Hassan A.—BSc (Alexandria Univ, Egypt), MSc (Oregon State Univ), PhD (ibid); Adjunct Professor of Entomology and Plant Pathology. 1976.

Mendes, Jeanette Mourehouse—BS (Santa Clara Univ), MA (Indiana Univ), PhD (ibid); Associate Professor of Political Science. 2006.

Mendez, Jesse Perez—BA (Midwestern State Univ), MA (Texas Tech Univ), JD (Indiana Univ), PhD (ibid); Associate Professor of Educational Studies. 2005.

Meng, Juan—BS ( Purdue Univ, China), MS (The Univ of Alabama), MA (Bowling Green State Univ), PhD (ibid); Assistant Professor of Media and Strategic Communications. 2011.

Menne, Jeffrey M.—BA (Univ of Louisville), MA (Vanderbilt Univ), PhD (ibid); Assistant Professor of English. 2011.

Mermin, Jeffrey A.—BS (Duke Univ), PhD (Cornell Univ); Assistant Professor of Mathematics. 2009.

Merten, Jeffrey J.—BA (Univ of Wisconsin, Eau Claire), MS (Iowa State Univ), PhD (ibid); Associate Professor of Human Development and Family Science. 2005.

Mihalko, Cheryl Ann—BS (California Polytechnic State Univ), MLA (Cornell Univ); Assistant Professor of Horticulture & Landscape Architecture. 2012.

Miller, Bridget Marie—BS (Univ of Nebraska), MEd (Univ of Texas), PhD (ibid); Assistant Professor of Applied Health and Educational Psychology. 2004.

Miller, Edwin L.—BS (Iowa State Univ), MS (ibid), PhD (ibid); Regents Service Professor of Natural Resource Ecology and Management. 1986.

Miller, Janice—BS (Frostburg State Univ), MPA (California State Univ, Chico), PhD (Univ of California, Los Angeles); Professor of Educational Studies. 1988.

Miller, Kenneth Eugene—BS (Kansas State Univ), PhD (Univ of Vermont College of Medicine); Professor of CHS: Anatomy and Cell Biology. 2002.

Miller, Matthew Dana—BA (Univ of Vermont), MS (Univ of Georgia), PhD (ibid); Visiting Assistant Professor of Geography. 2012.

Miller, Rita K.—BS (Michigan State Univ), PhD (Northwestern Univ Medical School); Assistant Professor of Biochemistry and Molecular Biology. 2009.

Miller, Robert V.—BA (Univ of California, Davis), MS (Univ of Illinois, Urbana-Champaign), PhD (Univ of Illinois, Urbana); Regents Professor of Microbiology and Molecular Genetics. 1991.

Miller, Ronald Keith—BSBA (Univ of Missouri), MBA (ibid), PhD (ibid); Associate Professor of Finance. 1981.

Miller, Stephen J.—BS (Oklahoma State Univ), MBA (ibid), PhD (Univ of California, Los Angeles); Regents Professor of Marketing. 1971.

Miller, Susan Marie—BA (Southern Illinois Univ), PhD (Univ of Missouri); Assistant Professor of Political Science. 2011.

Mills, Melissa Ann—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Clinical Instructor of Mathematics. 2014.

Mir, Shabana—BA (Kinnaird College, Pakistan), MA (Punjab Univ, Pakistan), PhD (Indiana Univ); Assistant Professor of Educational Studies. 2009.

Missal, Joseph P.—BM (Michigan State Univ), MM (Univ of Cincinnati), DMA (Univ of Colorado); Professor of Music. 1986.

Mitchell, Forrest L.—BS (Texas A&M Univ), MS (ibid), PhD (Louisiana State Univ); Adjunct Associate Professor of Entomology and Plant Pathology. 2003.

Mitchell, Helena—BS (State Univ of New York at Brockport), MS (Syracuse Univ), PhD (ibid); Department of Political Science. 2011.

Mitchell, Thomas K.—BS (Pennsylvania State Univ), MS (Clemson Univ), PhD (North Carolina State Univ); Associate Professor of Entomology and Plant Pathology. 2008.

Mix, Tamara Lee—BA (James Madison Univ), MA (Univ of Tennessee), PhD (ibid); Associate Professor of Sociology. 2005.

Modor Carol Lynn—BA (State Univ of New York, Geneva), MA (State Univ of New York Buffalo), PhD (ibid); Associate Professor of English. 1986.

Monaco, Thomas A.—BS (Brigham Young Univ), MS (ibid), PhD (Texas A&M Univ); Adjunct Associate Professor of Natural Resource Ecology and Management. 2007.

Montgomery, Diane M.—BS (Univ of Minnesota, Duluth), MAT (Western New Mexico Univ), PhD (Univ of New Mexico); Regents Professor of Applied Health and Educational Psychology 1989.

Moon, Seungho—BA (Hanyang Univ), MA (ibid), PhD (Columbia Univ); Assistant Professor of Teaching and Curriculum Leadership. 2011.

Moore, Steven Hal—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Arkansas); Department of Plant and Soil Sciences. 2010.

Moore, Tami L.—BA (ibid), MA (ibid), PhD (Washington State Univ); Assistant Professor of Educational Studies. 2009.

Moore-Merrell, Lori L.—BS (George Washington Univ), MPH (ibid), DrPH (ibid); Assistant Professor of Political Science. 2012.

Morgan, Alan Christian—BS (Texas A&M Univ), MEd (ibid), PhD (Univ of Florida); Assistant Professor of Agricultural Education. 2004.

Morgan, J. Brad—BS (Oklahoma State Univ), MS (Univ of Nebraska), PhD (Texas A&M Univ); Professor of Animal Science. 1995.

Morgan, Sandra E.—BS (Oklahoma State Univ), DVM (ibid); Associate Professor of VBS: Pathobiological Sciences. 1998.

Morris, Amanda—BA (Southwestern Univ), PhD (Temple Univ); Associate Professor of Human Development and Family Science. 2006.

Morris, Michael D.S.—BA (Wright State Univ), MS (ibid), MBA (ibid), PhD (Virginia Polytechnic Institute and State Univ); Adjunct Associate Professor of Mechanical and Aerospace Engineering. 2006.

Mossall, Jagadeesh—BSc (ANGR Agricultural Univ, India), MSc (ibid), PhD (Oklahoma State Univ); Department of Plant and Soil Sciences. 2010.
Nelson, Toby Larue—BS (Francis Marion Univ), PhD (Univ of South Carolina); Assistant Professor of Chemistry. 2011.

Nemeth, Stephen Charles—BA (Union College), MA (Univ of Iowa), PhD (ibid.); Assistant Professor of Political Science. 2013.

Newell, Mark Andrew—BS (Colorado State Univ), MS (ibid.), PhD (Iowa State Univ.); Adjunct Professor of Plant and Soil Sciences. 2013.

Nichols, Cynthia Ann—BBA (Oklahoma Baptist Univ), MA (Univ of Alabama), PhD (ibid.); Assistant Professor of Media and Strategic Communications. 2010.

Nichols, Jason Robert—BS (Univ of Oregon), MBA (Arizona State Univ), MS (ibid.), PhD (ibid.); Visiting Assistant Professor of Management Science and Information Systems. 2010.

Njaa, Bradley Lyndon—BSc (Univ of Saskatchewan), MSc (ibid.), DVM (ibid.); Associate Professor of VBS: Pathobiology. 2009.

Njite, David Henry—BS (Kenyatta Univ, Kenya), MA (Univ of Strathclyde, Glasgow), PhD (Ohio State Univ); Assistant Professor of Hotel and Restaurant Administration. 2005.

Noben, Bruce Howard—BS (Houghton College), PhD (The Johns Hopkins Bloomberg School of Public Health); Assistant Professor of Entomology & Plant Pathology. 2013.

Noel, Alan V.—BA (Texas A&M Univ), MA (Princeton Univ), PhD (ibid.); Professor of Mathematics. 1985.

Nolan, Robert E.—BA (Loyola Univ of Chicago), MA (ibid.), EdD (Northern Illinois Univ); Professor of Educational Studies. 1986.

Nord, G. Daryl—BS (Mayville State College), MS (Univ of North Dakota, Grand Forks), PhD (ibid.); Professor of Management Science and Information Systems. 1977.

Nord, Jeretta A.—BS (Southeastern Oklahoma State Univ), MBS (ibid.), PhD (Oklahoma State Univ); Professor of Management Science and Information Systems. 1982.

Norris, Deborah J. —BS (Oklahoma State Univ), MS (PhD (Univ of California, Los Angeles)); Department of Human Development and Family Science. 2010.

Norwood, Franklin Bailey—BS (Clemson Univ), MS (Kansas State Univ), PhD (North Carolina State Univ); Assistant Professor of Agricultural Economics. 2003.

Nowell, Shandrea Dilese—BS (Oral Roberts Univ.), MS (Oklahoma State Univ), PhD (ibid.); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Nyari, Arpad Stefan—BS (Univ of Tennessee, Romania), MA (Univ of Kansas, Lawrence), PhD (ibid.); Adjunct Assistant Professor of Zoology. 2012.

O'Brien, Matthew Scott—BS (Duquesne Univ.), MEd (Salisbury Univ.), PhD (Oklahoma State Univ); Associate Professor of Applied Health and Educational Psychology. 2006.

O'Connell, Timothy J.—BS (Cornell Univ), MA (College of William & Mary), PhD (Pennsylvania State Univ); Associate Professor of Natural Resource Ecology and Management. 2003.

O'Hara, John F. —BE (Univ of Michigan), PhD (Oklahoma State Univ); Adjunct Associate Professor of Electrical & Computer Engineering. 2012.

O'Hara, Steven E.—BS (Oklahoma State Univ), MAE (ibid.); Professor of Architecture. 1988.

Oberlender, Garold D.—BS (Oklahoma State Univ), MS (ibid.), PhD (Univ of Texas); Professor of Civil and Environmental Engineering. 1974.

Ochoa, Francisco Manuel—BS (Universidad del Zulia-Venezuela), MS (Universidad Central de Venezuela), PhD (Univ of Florida); Assistant Professor of Entomology and Plant Pathology. 2009.

Ochsner, Tyson E.—BS (Oklahoma State Univ), MA (Iowa State Univ.), PhD (ibid.); Assistant Professor of Plant and Soil Sciences. 2009.

Ohler, Judy Jane—BS (Univ of Southern Mississippi), MA (ibid.), PhD (ibid.); Associate Professor of Applied Health and Educational Psychology. 1995.

Olson, Nadine Fay—BA (Eastern Washington Univ), MA (Univ of Northern Iowa), PhD (Univ of Georgia, Athens); Associate Professor of Teaching and Curriculum Leadership. 1989.

Oleniacu, Pascal Anton—MS (Iowa State Univ.), DVM (College of Veterinary Medicine, Bucharest, Romania), PhD (Univ of Minnesota, St Paul); Professor of Animal Science. 2013.

Oomens, Anton G. —BS ( Wageningen University, The Netherlands), MS (ibid.), PhD (ibid.); Assistant Professor of VBS: Pathobiology. 2009.

Oppel, Alexander G.—BS (Univ of Texas), PhD (McMaster Univ); Assistant Professor of Zoology. 2009.

Opit, George Patrick—BS (Makerere Univ, Uganda), MS (Simon Fraser Univ), PhD (Kansas State Univ); Assistant Professor of Entomology and Plant Pathology. 2009.

Ormbee, Christine K.—BSE (Emporia State Univ), MS (ibid.), PhD (Univ of Kansas); Professor of Teaching and Curriculum Leadership. 2006.

Ortiz-Monasterio, J. Ivan—BS (Instituto Tecnologico y de Estudios Superiores de Monterrey), MSc (Univ of Illinois, Urbana-Champaign), PhD (ibid.); Department of Plant and Soil Sciences. 2010.
Associate Professor of Design, Housing and Merchandising. 2001.

Owens, M. Keith—BS (Univ of Idaho), MS (Univ of Wyoming), PhD (Utah State Univ); Professor of Natural Resource Ecology and Management. 2007.

Owenby Shiretta—BS (Texas Tech Univ), MS (ibid), PhD (ibid); Professor of Design, Housing and Merchandising. 1991.

Ownby, Charlotte L.—BS (Univ of Tennessee), MS (ibid), PhD (Colorado State Univ); Regents Professor Emeritus of VBS: Physiological Sciences. 1974.

Page, Melanie—BS (Arizona State Univ), MS (ibid), PhD (ibid); Associate Professor of Psychology. 1998.

Pagilla, Prabhakar R.—BS (Osmania Univ, Hyderabad, India), MS (Univ of California, Berkeley), PhD (ibid); Professor of Mechanical and Aerospace Engineering. 1996.

Palkurthi, Radesh R.—BS (Florida International Univ), MBA (San Jose State Univ), MS (Purdue Univ), PhD (Pennsylvania State Univ); Professor of Hotel and Restaurant Administration. 2004.

Palmer, Michael W.—BS (Earlham College), PhD (Duke Univ); Regents Professor of Botany. 1989.

Panciera, Roger.—MS (Cornell Univ), JIVM (Oklahoma State Univ), PhD (ibid); Professor Emeritus of VBS: Pathobiology. 1956.

Papes, Monica—BA (Universitatea de Vest, Romania), MA (Univ of Kansas), PhD (ibid); Assistant Professor of Zoology. 2011.

Pappas, James M.—BA (Tufts Univ), MBA (Univ of Washington), PhD (Univ of Massachusetts); Associate Professor of Management. 2002.

Park, Nohpil—BS (Seoul National Univ, Korea), MS (ibid), PhD (Texas A&M Univ); Associate Professor of Computer Science. 1999.

Parker, Stephen Page—AB (Univ of Georgia), MS (Oklahoma State Univ), PhD (ibid); Assistant Professor of Nutritional Sciences. 2003.

Park, Charles M.—BSIE (Oklahoma State Univ), MSIE (ibid.), PhD (ibid.); Lecturer of Biosystems and Agricultural Engineering. 2012.

Parle, William M.—BS (College of William and Mary), MS (Univ of South Carolina), PhD (ibid); Professor Emeritus of Political Science. 1981.

Parsons, M. Sue Christian—BS (Baylor Univ), MS (ibid), PhD (Arizona State Univ); Associate Professor of Teaching and Curriculum Leadership. 1999.

Parveen, Sabiha—BA (Univ. of Calcutta, India), PhD (Bowling Green State Univ); Visiting Assistant Professor of Communications Sciences and Disorders. 2013.

Pashin, Jack Charles—BS (Bradley Univ), MS (Univ of Kentucky), PhD (ibid); Professor of Geography. 2013.

Passmore, Tim R.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Associate Professor of Applied Health and Educational Psychology. 2005.

Pasternack, Lawrence—BA (York Univ), MA (Yale Univ), PhD (Boston Univ); Associate Professor of Philosophy. 2004.

Patil, Krishna Nivrutti—BS (College of Agricultural Engineering and Technology Akola), MS (Punjab Agricultural Univ), PhD (ibid); Research Assistant Professor of Biosystems and Agricultural Engineering. 2010.

Patneur, Doris K.—BA (Univ of Arkansas), MA (ibid), PhD (ibid); Associate Professor of CHS: Anatomy and Cell Biology. 2001.

Patrauchan, Marianna Arkadievna—BS (Shevchenko State Univ, Kiev, Ukraine), MS (ibid), PhD (Institute of Microbiology, Kiev Ukraine); Assistant Professor of Microbiology and Molecular Genetics. 2008.

Patterson, Michael A.—BS (Univ of California-Riverside), PhD (ibid.); Adjunct Professor of Zoology. 2013.

Payne, Joshua B.—BS (Arkansas State Univ), MS (Univ of Arkansas), PhD (North Carolina State Univ); Adjunct Assistant Professor of Biosystems and Agricultural Engineering. 2009.

Payton, Mark E.—BSEd (Southwest Missouri State Univ), MS (Oklahoma State Univ), PhD (ibid); Regents Service Professor of Statistics. 1991.

Peakheart, David W.—BS (Southwestern Oklahoma State Univ), MS (Oklahoma State Univ), PhD (ibid); Assistant Professor of Design, Housing and Merchandising. 2010.

Ped, Derrell S.—BS (Montana State Univ), MS (ibid), PhD (Univ of Illinois); Professor of Agricultural Economics. 1989.

Pepper Thomas F.—BS (Oklahoma State Univ), MS (ibid), PhD (North Carolina State Univ); Professor of Plant and Soil Sciences. 1976.

Pekoz, Semra—BS (METU Turkey), MS (ibid), PhD (Oklahoma State Univ); Associate Professor of Design, Housing and Merchandising. 2005.

Penn, Chad—BS (Pennsylvania State Univ), MS (Univ of Delaware), PhD (Virginia Technical Univ); Associate Professor of Plant and Soil Sciences. 2006.

Penn, Jeremy Daniel—BS (Univ of Nebraska-Lincoln), MA (ibid), PhD (ibid); Adjunct Professor of Educational Studies. 2011.

Pereza-Fox, Silvia S.—BA (Oklahoma State Univ), MA (Univ of Oklahoma), PhD (ibid); Assistant Professor of Foreign Languages and Literature. 2007.

Perl, Jacques H.H.—Candidaat (Univ of Amsterdam), Doctorandus (ibid), Doctor (Univ of Leiden); Professor of Physics. 1988.

Perkins, Stephen M.—BA (Univ of Oklahoma), MA (Arizona State Univ), PhD (ibid); Associate Professor of Sociology. 2003.

Perkins-Yazie, Penelope—BS (Univ of Maine), MSC (Univ of Florida), PhD (ibid); Adjunct Assistant Professor of Horticulture and Landscape Architecture. 1996.

Perlow, Seth—BA (Brown Univ), MA (Univ of Chicago), PhD (Cornell Univ); Assistant Professor of English. 2013.

Perry, Kayte Marie—BS (Bishop College), MED (Southeastern Oklahoma State Univ), PhD (Oklahoma State Univ); Associate Professor of Educational Studies. 1979.

Peterson, James T.—BS (Univ of Illinois at Urbana-Champaign), MS (ibid), PhD (Univ of Missouri); Adjunct Professor of Natural Resource Ecology and Management. 2013.

Peterson, Timothy M.—BA (Univ of Connecticut), PhD (Univ of Missouri); Associate Professor of Political Science. 2011.

Petruin, Ronald A.—BA (Bridgewater State College), MA (Univ of Rhode Island), MA (Clark Univ, Phib); Associate Professor of History. 1985.

Petrova, Adriana G.—BS (Softa Univ, Bulgaria), MA (Univ of Texas at Austin), PhD (Cornell Univ); Assistant Professor of Design, Housing and Merchandising. 2009.

Pettil, Michele L.—BS (Truman State Univ), MPH (Univ of Illinois, Springfield), PhD (Southern Illinois Univ); Assistant Professor of Applied Health and Educational Psychology. 2006.

Poe, Eva—BS (Polytechnic Univ of Tirana), MA (Institut Francais du Petroe), PhD (Univ of Oklahoma); Adjunct Assistant Professor of Geology. 2012.

Pfeffer, Joshua Andrew—BA (Univ of Michigan), MS (Oklahoma State Univ), PhD (ibid); Adjunct Assistant Professor of Nutritional Sciences. 2010.

Phillips, Brenda—BA (Bluffton College), MA (The Ohio State Univ), PhD (ibid); Professor of Political Science. 2005.

Phillips, John J.—BAE (Oklahoma State Univ), MAE (ibid); Associate Professor of Architecture. 2003.

Phillips, Thomas W.—BS (Juniaata College), MS (State Univ of New York), PhD (ibid); Adjunct Professor of Entomology and Plant Pathology 1996.

Phillips, William A.—BS (Middle Tennessee State Univ), MS (Virginia Polytechnic Inst. & State Univ), PhD (ibid.); Adjunct Assistant Professor of Animal Science. 1976.

Piao, Daqing—BS (Tsinghua Univ, China), MS (Univ of Connecticut), PhD (ibid); Associate Professor of Electrical and Computer Engineering. 2005.

Picking, Wendy L.—BA (ibid), PhD (ibid); Associate Professor of Microbiology and Molecular Genetics. 2009.

Picking, William D.—BS (Kansas State Univ), PhD (Univ of Kansas); Professor of Microbiology and Molecular Genetics. 2009.

Pillay, Rubin—BSc (Univ of Stellenbosch), MSc (Univ of Luton), PhD (Univ of Cape Town); Clinical Assistant Professor of Entrepreneurship and Emerging Enterprise. 2010.

Pivatou, Griffin Patrick—BA (McNeese State Univ), JD (Univ of Texas); Assistant Professor of Economics. 2010.

Place, Sara Elisabeth—BS (Cornell Univ), PhD (Univ of California, Davis); Assistant Professor of Animal Science. 2013.

Polf, Jeremy C.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Clinical Assistant Professor of Physics. 2011.

Pollak, Michael H.—BS (Carnegie-Mellon Univ), PhD (Univ of Oklahoma); Professor of CHS: Psychiatry and Behavioral Sciences. 1981.

Polechek, John A.—BA (Northwestern Univ), MS (Georgia Institute of Technology), PhD (ibid); Professor of Finance. 1983.

Poncy, Brian C.—BA (Univ of North Texas), MS (ibid), PhD (ibid); Assistant Professor of Design, Housing and Merchandising. 2010.

Pope, Jing Liu—MS (Beijing Medical Univ), MD (ibid), PhD (Univ of Louisiana, Monroe); Research Scientist of VBS: Physiological Sciences. 2002.

Porter, David R.—BS (Oklahoma State Univ), MS (ibid), PhD (Texas Tech Univ); Professor of Plant and Soil Sciences. 2007.
Porter, Jess C.—BA (Univ of Colorado, Colorado Springs), MS (Oklahoma State Univ.), PhD (ibid.); Assistant Professor of Geography. 2012.
Post, Angela Rose—BS (North Carolina State Univ.), MS (ibid.), PhD (Virginia Polytechnic and State Univ); Assistant Professor of Plant and Soil Sciences. 2013.
Potts, Charles Richard—BA (Univ of North Carolina, Charlotte), MA (Univ of Kansas, PhD (ibid); Associate Professor Emeritus of Psychology. 1990.
Prade, Roland A.—BS (Univ of San Paulo), MS (ibid.), PhD (ibid); Professor of Microbiology and Molecular Genetics. 1995.
Patt, David B.—BS (Oklahoma State Univ), MS (ibid.), PhD (ibid); Associate Professor of Industrial Engineering and Management. 1992.
Presotto, Antonio M.—IM (Kent State Univ), MLS (Univ of Wisconsin-Milwaukee), EdD (Oklahoma State Univ); Professor of Teaching and Curriculum Leadership. 2007.
Preston, Dennis Richard—BA (Univ of Louisville), PhD (Univ of Wisconsin, Madison); Regents Professor of English. 2009.
Price III, Joseph A.—BS (Rutgers Univ), PhD (Univ of Massachusetts); Professor of AMS: Pathology. 1985.
Fritsker-Iger E.—BA (Donetsk State Univ, USSR), MS (ibid.), PhD (Univ of South Florida); Professor of Mathematics. 2001.
Puckett, Jonathan David—MS (Kansas State Univ), DVM (Oklahoma State Univ); Assistant Professor of VBS: Veterinary Clinical Sciences. 2012.
Puckette, James O.—BS (Oklahoma State Univ), MS (ibid.), PhD (ibid); Associate Professor of Geology. 2000.
Pumphrey, Lela Dale—BSBA (Univ of Southern Mississippi), MBA (Arkansas State Univ), PhD (Univ of Missouri-Columbia); Clinical Associate Professor of Accounting. 2013.
Purdie, Neil—BS (Univ of Glasgow), PhD (ibid); Professor of Chemistry. 1965.
Purvis II, Hebbie—BS (Univ of Kentucky), MS (Univ of Missouri), PhD (Oklahoma State Univ); Associate Professor of Animal Science. 1996.
Puterka, Gary Joseph—BS (Univ of Wyoming), MS (ibid.), PhD (Oklahoma State Univ); Adjunct Associate Professor of Entomology and Plant Pathology. 2005.
Qu, Huabin—BS (Northern Arizona Univ), MS (Purdue Univ), PhD (ibid); Regents Professor of Hotel and Restaurant Administration. 1999.
Quan, Tracy Michelle—BS (Univ of California, San Diego), PhD (Massachusetts Institute of Technology); Associate Professor of Geology. 2010.
Quible, Zane K.—BS (Univ of Nebraska, Lincoln), MEd (ibid.), PhD (Michigan State Univ); Professor of Management. 1981.
Raff, Michael—BS (Univ of Oklahoma), PhD (ibid.); Adjunct Assistant Professor of Electrical and Computer Engineering. 2011.
Redfearn, Daren D.—BS (Texas Tech Univ), MS (Univ of Nebraska), PhD (ibid); Assistant Professor of Plant Pathology. 2008.
Reichard, Mason V.—BS (Central Michigan Univ), MS, PhD (Oklahoma State Univ); Assistant Professor of VBS: Pathobiology. 2008.
Reid, Karl Newell—BS (Oklahoma State Univ), MS (ibid.), DSc (Massachusetts Institute of Technology); Regents Service Professor of Mechanical and Aerospace Engineering. 1964.
Reilly, Frank Kent III—BA (Univ of West Florida), MA (Univ of Texas, Austin), PhD (ibid.); Assistant Professor of History. 2012.
Reinert, James A.—BS (Oklahoma State Univ), MS (Clemson Univ), PhD (ibid.); Adjunct Professor of Entomology and Plant Pathology. 2005.
Reiskind, Michael H.—BS (Amherst College), MPH (Univ of Michigan), PhD (ibid); Assistant Professor of Entomology and Plant Pathology. 2009.
Reiter, Eric H.—BA (Univ of Rochester), PhD (State Univ of New York, Buffalo); Professor of Philosophy. 2000.
Reynolds, Matthew—BA (Oxford Univ), MSc (Reading Univ), PhD (Cornell Univ); Adjunct Professor of Plant and Soil Sciences. 2003.
Rezabek, Grant B.—BS (Univ of Virginia), MPH (Univ of Oklahoma Health Science Center), DVM (Oklahoma State Univ); Assistant Professor of VBS: Pathobiology. 2006.
Rhinehart, R. Russell—BS (Univ of Maryland), MS (ibid.), PhD (North Carolina State Univ); Professor of Chemical Engineering. 1997.
Rich, Jamie Paul—BS (Indiana Univ at Pennsylvania), MS, PhD (ibid.); Visiting Assistant Professor of Geology. 2012.
Richards, Christopher—BS (Texas A&M Univ), MS (Univ of Nebraska), PhD (Univ of Kentucky); Associate Professor of Animal Science. 2005.
Rickman, Dan S.—BS (Univ of Wyoming), MPA (ibid.), PhD (ibid.); Regents Professor of Economics. 1996.
Riggs, Annette S.—BS (Oklahoma State Univ), MS (Univ of Connecticut), PhD (ibid.); Assistant Professor of Animal Science. 2012.
Riggins, James D.—BS (Oklahoma State Univ), MS (Univ of Illinois, Urbana), PhD (ibid.); Assistant Professor of Mechanical Engineering. 2008.
Rimbai, Ashish—BS (Madras Veterinary College, India), PhD (Virginia Technical University); Assistant Professor of VBS: Physiological Sciences. 2012.
Rao, Mahesh N.—BS (AP Agriculture Univ, India), MS (ibid.), PhD (Oklahoma State Univ); Associate Professor of Geography. 1999.
Rao, Ramesh P.—BS (Univ of the Philippines), MBA (Asian Institute of Management), PhD (Texas Tech Univ); Professor of Finance. 2002.
Robinson, Jeremy Shane—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Missouri, Columbia); Associate Professor of Agricultural Education. 2007.

Rockat, Mark Clement—MS (Univ of Missouri), DVM (Mississippi State Univ); Professor of VBS: Veterinary Clinical Sciences. 1994.

Rockley, Mark G.—BA (Hope College), PhD (Univ of Southampton); Professor of Chemistry. 1975.

Rohla, Charles Thomas—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Department of Horticulture and Landscape Architecture. 2009.

Rohrs, Richard Carlton—BA (Bucknell Univ), MA (Univ of Nebraska), PhD (ibid); Professor of History. 1976.

Rolf, Megan Margaret—BS (Kansas State Univ.), MS (Univ of Missouri), PhD (ibid); Assistant Professor of Animal Science. 2012.

Romano, Nicholas C.—BS (Univ of Arizona), MS (ibid), PhD (ibid); Assistant Professor of Management Science and Information Systems. 2001.

Romans, John S.C.—BS (Iowa State Univ), MA (Univ of Iowa), PhD (Univ of Kansas); Associate Professor of Applied Health and Educational Psychology. 1990.

Roussinick, Marilyn J.—BA (Univ of Colorado), PhD (ibid); Adjunct Assistant Professor of Entomology and Plant Pathology. 2000.

Rossa, Andrew Juan—BA (Hampshire College), MA (Temple Univ), PhD (Univ of Massachusetts); Assistant Professor of History 2006.

Rosenberger, Albert T.—BA (Whitman College), MS (Univ of Chicago), PhD (Univ of Illinois, Urbana); Professor of Physics. 1995.

Rossole, Ciro Antonio—BS (Univ of Sao Paulo, Brazil), MSc (ibid), PhD (ibid); Assistant Professor of Plant and Soil Sciences. 2012.

Ross, Chris R.—BS (Univ of Missouri), PhD (ibid); Professor of VBS: Physiological Sciences. 2007.

Rosser, Paul E.—BSIE (GMI Engineering and Management Inst), MS (Virginia Polytechnic Inst and State Univ), PhD (ibid); Associate Professor of Industrial Engineering and Management. 2000.

Rosser, Edward J.—BA (Texas Tech Univ), MA (ibid), PhD (Univ of North Texas); Adjunct Assistant Professor of Educational Studies. 2007.

Roth, Liz—BA (Smith College), MFA (Univ of Wisconsin-Madison); Associate Professor of Art. 2012.

Roy Devesh—BA (Univ of Delhi, India), MA (Delhi School of Economics, India), PhD (Univ of Maryland, College Park); Department of Economics. 2011.

Royer, Tom A.—BS (Iowa State Univ), MS (South Dakota State Univ), PhD (Texas A&M Univ); Associate Professor of Entomology and Plant Pathology. 1997.

Rubes, Steven Michael—BS (ibid), JD (Univ of Oklahoma); Clinical Assistant Professor of Hotel and Restaurant Administration. 2010.

Rudolf, Peter Joseph—BA (St. Louis Univ), MA (Univ of Illinois at Urbana-Champaign), PhD (ibid); Assistant Professor of Political Science. 2009.

Ruhl, Donald Dean—BA (Univ of Missouri), PhD (Saint Louis Univ School of Medicine); Assistant Professor of Biochemistry and Molecular Biology 2010.

Ruppert-Streocu, Mary Susan—BS (Southern Illinois Univ), MS (ibid), PhD (Univ of Missouri), PhD (ibid); Assistant Professor of Design, Housing and Merchandising. 2011.

Russ, Randall R.—BS (Kansas State Univ), MS (Oklahoma State Univ), PhD (ibid); Associate Professor of Design, Housing and Merchandising. 2006.

Russell, Bruce W.—BSCE (Rice Univ), MCE (ibid), PhD (Univ of Texas); Associate Professor of Civil and Environmental Engineering. 2003.

Rutherford, Traci A.—BS (Cornell Univ), MA (Texas A&M Univ), PhD (ibid); Department of Agricultural Education. 2008.

Ryan, Bill—BS (Oklahoma State Univ), MS (ibid), EdD (ibid); Associate Professor of Hotel and Restaurant Administration. 1981.

Ryder, Di Ann—BA (Kearney State College), ME (Univ of Nebraska-Lincoln), PhD (ibid); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Saenz, Daniel—BS (Stephen F Austin State Univ), MS (ibid), PhD (Texas A&M Univ); Associate Professor of Zoology 2007.

Sahl, Talhun—BS (South Dakota State Univ), MS (ibid), PhD (ibid); Adjunct Assistant Professor of Animal Science. 1998.

Salah, Khaled A.—BS (Cairo Univ), ME (ibid), MS (Univ of Michigan), PhD (ibid); Associate Professor of Mechanical and Aerospace Engineering. 2003.

Salter, Jeffrey Alan—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Assistant Professor of Agricultural Education. 2009.

Samadzadeh, M.H.—BS (Sharif Univ of Tech.), MS (Univ of Louisiana Lafayette), PhD (ibid); Professor of Computer Science. 1987.

Sander, Jean Elizabeth—BS (Elmhurst College), MA (Univ of Georgia), DVM (Univ of Wisconsin); Professor of VBS: Pathobiology. 2011.

Sands, Dee Ann—BSCE (Univ of Missouri-Rolla), MS (Oklahoma State Univ), PhD (Univ of Texas at Austin); Associate Professor of Civil and Environmental Engineering. 1996.

Sander, Jennifer Yong—BA (Univ of Florida), ME (ibid), PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 2006.

Sanders, Larry D.—BA (Chapman College), MS (New Mexico State Univ), PhD (Colorado State Univ); Professor of Agricultural Economics. 1985.

Sanders, Paula Renee—BS (Univ of California at Berkeley), MBA (ibid), PhD (Univ of Illinois at Urbana-Champaign); Assistant Professor of Accounting. 2012.

Sanny, Charles G.—BS (Oklahoma Baptist Univ), PhD (ibid); Professor of CHS: Biochemistry and Microbiology. 1995.

Sarathy, Rudhindra—BE (Univ of Madras, India), PhD (Texas A&M Univ); Professor of Management Science and Information Systems. 2000.

Savvides, Andreas—BCom (Univ of Birmingham), BS (ibid), MA (Univ of Florida), PhD (ibid), Professor of Economics. 1985.

Sawyer, Gregory W.—BS (Florida Institute of Technology), PhD (Univ of California, Irvine); Associate Professor of CHS: Biochemistry and Microbiology. 2001.

Scharneck, Dennis L.—BS (Univ of Arizona), MS (Oregon State Univ), PhD (Colorado State Univ); Department of Natural Resource Ecology and Management. 2011.

Schatzer, Raymond Joe—BS (Univ of Missouri), MS (ibid), PhD (Iowa State Univ); Professor of Agricultural Economics 1983.

Scheets, George M.—BS (United States Military Academy), MS (Kansas State Univ), PhD (ibid); Associate Professor of Electrical and Computer Engineering. 1987.

Scheets, Kay M.—BS (Panhandle State Univ), PhD (Kansas State Univ); Adjunct Assistant Professor of Botany 1993.

Shestokat, Karin—BA (Univ of Freiburg, Germany), MA (Univ of New Mexico), PhD (Univ of Southern California); Professor of Foreign Languages and Literature. 1996.

Schick, Laurie Susan—BA (California State Univ, Northridge), MS (California State Univ, Los Angeles), PhD (Univ of California, Los Angeles); Assistant Professor of English. 2005.

Schneider, William L.—BS (Univ of Minnesota, Duluth), PhD (Michigan State Univ); Department of Microbiology and Molecular Biology. 2010.

Schneille, Michael Allen—BS (Kansas State Univ), MS (ibid), PhD (Colorado State Univ); Professor of Horticulture and Landscape Architecture. 1999.

Schloenbeck, Gerald—BS (Alfred Ludwig Univ), MS (Univ of Mannbruck), PhD (ibid); Associate Professor of Biology. 2006.

Schoonover, Michael John—MS (ibid), DM (Oklahoma State Univ); Assistant Professor of VBS: Veterinary Clinical Sciences. 2012.

Schrader, David C.—BA (Bethel College), MA (Indiana Univ), PhD (ibid); Associate Professor of Psychology 1991.

Schrader, Dorothy L.—BA (Agnes Scott College), MA (Middlebury College), PhD (Florida State Univ), Licence es-lettres (Univ de Paris III); Associate Professor of Foreign Languages and Literature. 1977.

Schul, Johannes—MS (Phillips Univ Germany), PhD (ibid); Department of Zoology 2010.

Schulze, Mathias—BS (Univ of Kaiserslautern, Germany), MIR (Univ of Utrecht), PhD (Univ of Kaiserslautern, Germany); Associate Professor of Mathematics. 2006.

Schwartz, William Carleton—BS (Kansas State Univ), MS (ibid), PhD (Univ of Iowa); Assistant Professor of Accounting. 2009.

Schweinfeger, Kamil L.—BS (Anderson Univ), MS (Kansas State Univ); Assistant Professor of Human Development and Family Science. 2007.

Scott, Allen—BM (Samford Univ), MM (Univ of Alabama), PhD (Florida State Univ); Associate Professor of Music. 1998.

Scott, James—BA (Wheaton College), MA (Northern Illinois Univ), PhD (ibid); Professor of Political Science. 2006.

Scott, William Charles—BA (Bethany College), MA (Texas Christian Univ), PhD (ibid); Associate Professor of Psychology 1969.

Scott-Halsey, Sheila—BA (Texas Tech Univ), BS (Univ of Nebraska), MS (Texas Tech Univ), PhD (ibid); Assistant Professor of Hotel and Restaurant Administration. 2006.

Seager, Dennis L.—BA (Univ of Wisconsin, Milwaukee), MA (Univ of New York, Binghamton), PhD (ibid); Professor of Foreign Languages and Literature. 1992.
Seitsinger, Jack Randall—BS (Oklahoma State Univ), MArch (ibid); Professor of Architecture. 1989.
Sel, Mary Jo—BS (Oklahoma State Univ), MS (Univ of Central Oklahoma), EdD (ibid); Associate Professor of Teaching and Curriculum Leadership. 2001.
Selk, Glenn—BS (Univ of Nebraska, Lincoln), MS (Oklahoma State Univ), PhD (ibid); Professor Emeritus of Animal Science. 1986.
Senat, E Joseph—BA (Louisiana State Univ), MA (Univ of Memphis), PhD (Univ of North Carolina); Associate Professor of Media and Strategic Communications. 1998.
Sharda, Ramesh—BE (Univ of Idaho), MBA (Univ of Wisconsin, Madison), MS (Ohio State Univ), PhD (ibid); Regents Professor of Management Science and Information Systems. 1980.
Shaw, Edward L—BS (Georgia Southwestern State Univ), PhD (Univ of South Alabama College of Medicine); Associate Professor of Microbiology and Molecular Genetics. 2004.
Shaw, James H.—BS (Stephen F Austin State College), MFS (Yale Univ), PhD (ibid); Professor of Natural Resource Ecology and Management. 1974.
Shaw, Jennifer H.—BS (Florida State Univ), PhD (Univ of Montana); Assistant Professor of Zoology. 2010.
Sheehan, Rebecca A—BS (Purdue Univ), MAG (Southwest Texas State Univ), PhD (Louisiana State Univ); Assistant Professor of Geography. 2006.
Sheeran, Linda R—BS (Western State College), MS (Fort Hays State Univ), EdD (Oklahoma State University); Clinical Professor of Human Development and Family Science. 1998.
Sheng, Weihua—BS (Zhejiang Univ, China), MS (ibid), PhD (Michigan State Univ); Assistant Professor of Electrical and Computer Engineering. 2006.
Skidley, David W.—BS (Clemson Univ), MS (Pennsylvania State Univ), PhD (Ohio State Univ); Assistant Professor of Agricultural Economics. 2009.
Shoup, Dan—BS (Miami Univ), MS (Univ of Oklahoma), PhD (Kent State Univ); Associate Professor of Natural Resource Ecology and Management. 2005.
Shreffer, Karina M—BS (Oklahoma State Univ), MA (Pennsylvania State Univ), PhD (ibid); Assistant Professor of Human Development and Family Science. 2007.
Shreffler, James W.—BS (Ohio State Univ), MS (Louisiana State Univ), PhD (Univ of Florida); Adjunct Assistant Professor of Horticulture and Landscape Architecture. 2001.
Shriver, Lenka Humenikova—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Assistant Professor of Nutritional Sciences. 2006.
Shriver, Thomas E.—BA (Western Kentucky Univ), MA (Univ of Tennessee), PhD (ibid); Professor of Sociology. 1995.
Shufman, Kevin A.—BS (Purdue Univ), MS (Univ of Kentucky), PhD (Kansan State Univ); Assistant Professor of Entomology and Plant Pathology. 1998.
Shull, Jr, Peter Otto—BA (Princeton Univ), MS (Rice Univ), PhD (ibid); Associate Professor of Physics. 1984.
Siddons, Louise Elizabeth—BA (Cornell Univ), AM (Stanford Univ), PhD (ibid); Assistant Professor of Art. 2010.
Simkins, Betty Jo—BS (Univ of Arkansas), MBA (Oklahoma State Univ), PhD (Case Western Reserve Univ); Professor of Finance. 1997.
Simms, Alexander Ray—BS (Oklahoma State Univ), PhD (Rice Univ); Assistant Professor of Geology. 2005.
Simpson, William Gary—BBA (Texas Tech Univ), MBA (Southern Methodist Univ), PhD (Texas A&M Univ), Professor of Finance. 1978.
Singh, Balraj—B.Tech (IIT, India), MS (Univ of Manitoba), DSc (Massachusetts Institute of Technology); Professor of General Engineering. 2012.
Singer, Raman Pal—B.Tech (Indian Institute of Technology, Kanpur), MS (Univ of Rhode Island), PhD (ibid); Professor of Mechanical and Aerospace Engineering. 2006.
Sirhandi, Marcella—BA (California State Univ), MBA (ibid), MS (Univ of Utah); Professor Emeritus of Art. 2002.
Sitton, Shelly—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Associate Professor of Agricultural Education. 1992.
Sjogren, Susan K.—BS (Univ of Wisconsin-Madison), MS (Western Washington Univ), PhD (Univ of Wisconsin-Madison); Adjunct Professor of Natural Resource Ecology and Management. 2007.
Skinner, Cathleen L.—BA (Oral Roberts Univ.), MA (Oklahoma State Univ), PhD (ibid); Visiting Assistant Professor of Teaching and Curriculum Leadership. 2011.
Skoglund, LeGrande M.—BA (Drew Univ), MS (Cornell Univ), PhD (ibid); Associate Professor of Chemistry 2002.
Skvitch, Lisa—BS (St Petersburg Univ of Finance & Commerce, St Petersburg, Russia), MBA (Iowa State Univ), PhD (ibid); Assistant Professor of Hotel and Restaurant Administration. 2008.
Smay, James Earl—BS (Oklahoma State Univ), PhD (Univ of Illinois at Urbana-Champaign); Associate Professor of Chemical Engineering. 2002.
Smith, Alexis N.—BS (Rice Univ), PhD (Tulane Univ); Assistant Professor of Management. 2012.
Smith, Brenda Jane—BS (Oklahoma Baptist Univ), MS (Univ of Texas at Tyler), PhD (Oklahoma State Univ); Professor of Nutritional Sciences. 2002.
Smith, Damon L.—BS (State Univ of New York), MS (North Carolina State Univ); PhD (ibid); Assistant Professor of Entomology and Plant Pathology. 2008.
Smith, Douglas Boyd—BS (Univ of Nebraska), MS (Univ of Nevada, Las Vegas), PhD (Univ of Nebraska); Associate Professor of Applied Health and Educational Psychology. 2002.
Smith, Kent S.—BS (Cameron Univ), MS (Midwestern State Univ), PhD (Univ of Oklahoma); Associate Professor of CHS: Anatomy and Cell Biology. 2003.
Smith, Lindsey C.—BA (Hendrix College), MA (Univ of North Carolina), PhD (ibid); Assistant Professor of English. 2006.
Smith, Loren Michael—BS (Truman State Univ), MS (South Dakota State Univ), PhD (Utah State Univ); Regents Professor of Zoology. 2007.
Smith, Michael Myrie—BA (Southern Illinois Univ), MA (ibid), PhD (Texas Christian Univ); Professor of History. 1970.
Smith, Michael Wayne—BS (Oklahoma State Univ), MS (ibid), PhD (Michigan State Univ); Regents Service Professor of Horticulture and Landscape Architecture. 1977.
Smith, Philip Neil—BS (Murray State Univ), PhD (Texas Tech Univ); Adjunct Assistant Professor of Zoology. 2008.
Smolen, Michael—BS (Univ of Rochester), MS (Univ of Tennessee), PhD (Virginia Poly & State Univ); Professor Emeritus of Biosystems and Agricultural Engineering. 1990.
Smethe, Donald Ray—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Civil and Environmental Engineering. 1978.
Snider, Timothy A—BS (Oklahoma State Univ), DVM (ibid), PhD (ibid); Associate Professor of VBS: Pathobiology. 2009.
Somerville, Ian D.—BSc (The Queens Univ of Belfast), PhD (ibid); Adjunct Professor of Geography. 2007.
Song, Ji Hoon—BA (Han Yang Univ), MS (Pennsylvania State Univ), PhD (ibid); Assistant Professor of Teaching and Curriculum Leadership. 2009.
Soulages, Jose L—BS (Univ Nacional de la Plata), PhD (ibid); Associate Professor of Biochemistry and Molecular Biology. 1999.
Spaulding, Shannon—BA (Texas Tech Univ), MA (Univ of Arkansas), PhD (Univ of Wisconsin-Madison); Associate Professor of Philosophy. 2012.
Spector Tom—BS (Florida State Univ), MArch (Georgia Tech), PhD (Univ of California, Berkeley); Associate Professor of Architecture. 2003.
Sped, George Maurice—BM (Vanderbilt Univ), MM (Boston Univ); Associate Professor of Music. 2005.
Spencer, Angela—BS (Univ of the Ozarks), MS (Univ of Central Arkansas), PhD (Univ of Arkansas); Professor of Accounting. 2006.
Spicer, Leon J.—BS (Univ of Minnesota), MS (Univ of Idaho), PhD (Michigan State Univ); Professor of Animal Science. 1988.
Spitzer, Jeffrey D—BSME (Univ of Illinois, Urbana-Champaign), MSME (ibid), PhD (Oklahoma State Univ); Regents Professor of Mechanical and Aerospace Engineering. 1996.
Springer Tim L—BS (Northwestern Oklahoma State Univ), MS (Oklahoma State Univ), PhD (ibid); Department of Plant and Soil Sciences. 2010.
Spurrer, Robert Lewis—BA (Univ of Missouri), MA (ibid), PhD (Univ of California, Santa Barbara); Professor of Political Science. 1972.
St Pierre, Eileen—BS (Florida State Univ), PhD (ibid); Assistant Professor of Human Development and Family Science. 2003.
Stadler, Stephen John—BSED (Miami Univ), MA (ibid), PhD (Indiana State Univ); Professor of Geography. 1980.
Stafne, Eric T—BS (Michigan State Univ), MS (Univ of Arkansas), PhD (ibid); Associate Professor of Horticulture and Landscape Architecture. 2005.
Stahle, David W.—BA (Univ of Arizona), MA (Univ of Arkansas), PhD (Arizona State Univ); Adjunct Professor of Natural Resource Ecology and Management. 2007.
Stansberry, Susan L.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Associate Professor of Educational Studies. 2002.
Stocek, Arthur Louis—BS (Kansas State Univ), MS (Iowa State Univ), PhD (ibid); Associate Professor of Biological Sciences. 1987.

Storck, Anna Marie—BS (Baylor College of Medicine), MS (Univ of Texas at Houston), PhD (Univ of Texas at Austin); Assistant Professor of Anesthesiology. 2011.

Stoff, S. Lee—BS (California State Univ), MS (ibid), PhD (ibid); Assistant Professor of Electrical and Computer Engineering. 2009.

Stoughton, J. David—BS (Oklahoma State Univ), MS (ibid), PhD (Oklahoma State Univ); Assistant Professor of Mechanical and Aerospace Engineering. 2011.

Stoughton, J. David—BS (Oklahoma State Univ), MS (ibid), PhD (Oklahoma State Univ); Assistant Professor of Mechanical and Aerospace Engineering. 2011.

Stoughton, J. David—BS (Oklahoma State Univ), MS (ibid), PhD (Oklahoma State Univ); Assistant Professor of Mechanical and Aerospace Engineering. 2011.

Stout, Joseph A.—BA (Angelo State College), MA (Texas A&M), PhD (Oklahoma State Univ); Assistant Professor of Computer Science. 2009.

Stover, Enos L.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Adjunct Professor of Civil and Environmental Engineering. 2009.

Strathey, Randal Kevin—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Nebraska); Professor of Biological Sciences. 2011.

Strickland, Richard L.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Associate Professor of Entomology and Plant Pathology. 2011.

Stroope, Z. Randall—BME (Oral Roberts Univ), MM (Univ of Colorado), DMA (Arizona State Univ); Adjunct Associate Professor of Music. 2009.

Sukhdial, Ajay Singh—BS (State Stephens College), MBA (Wake Forest Univ), PhD (Univ of Nebraska); Assistant Professor of Management. 1985.

Talley, Justin Lee—BS (West Texas A&M Univ), MS (ibid), PhD (Kansas State Univ); Assistant Professor of Plant Pathology. 2011.

Tang, Chun-Hung—BS (National Taiwan Univ), MA (New York Univ), PhD (Purdue Univ); Assistant Professor of Hotel and Restaurant Administration. 2009.

Tapped, Tyler Nicholas—BS (Northwest Missouri State Univ), MA (ibid), PhD (Oklahoma State Univ); Assistant Professor of Accounting. 2009.

Taylor, Amy Haliburton—BS (Vanderbilt Univ), MA (Univ of Virginia), PhD (Univ of Missouri); Associate Professor of Computer Science. 2005.

Taylor, Charles G.—BS (Univ of Minnesota), MS (ibid), PhD (ibid); Professor Emeritus of Marine Science and Technology. 2005.

Taylor, Robert Michael—BS (ibid.), MS (ibid.), PhD (ibid.; Research Professor of Mechanical Engineering. 2011.

Teve, John R.—BA (Dartmouth College), WA (Western Washington Univ), MA (Middlebury College), PhD (Univ of Washington); Professor of Foreign Languages and Literature. 1991.

Teague, Keith A.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Electrical and Computer Engineering. 1988, 1983.

Teague, T. Kent—BS (Southeastern Oklahoma State Univ), MA (Univ of Oklahoma), PhD (Oklahoma State Univ); Professor of Animal Science. 1980.

Tefft, Donita R.—BS (Oklahoma State Univ), MA (ibid), PhD (ibid); Assistant Professor of Communication Sciences and Disorders. 2011.

Teling, Elisa—BS (Univ of Oregon); Associate Professor of French. 2011.

Tennent, John—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Geological Sciences. 2004.

Tennent, John—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Geological Sciences. 2004.

Tennent, John—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Geological Sciences. 2004.

Tennent, John—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor of Geological Sciences. 2004.
Tohler, Michael—BS (Swiss Federal Inst of Tech Zurich), PhD (Univ of Zurich); Assistant Professor of Zoology. 2011.

Tolk, Janice N.—BS (Univ of Kentucky), ME (Texas Tech Univ), PhD (ibid); Adjunct Assistant Professor of General Engineering. 2009.

Topham, Glade—BS (Bingham Young Univ), MS (ibid), PhD (Texas Tech Univ); Associate Professor of Human Development and Family Science. 2003.

Toulouse, Michael—BS (Univ of Quebec at Montreal), MSc (Univ of Montreal), PhD (ibid); Visiting Associate Professor of Computer Science. 2009.

Town, Mary C.—BA (Univ of California, San Diego), MS (Univ of California, Davis), PhD (ibid); Visiting Assistant Professor of Zoology. 2009.

Town, Rhea A.—BSc (Univ of Guelph), MSc (ibid.), PhD (ibid.); Associate Professor of VBS: Pathobiology. 2012.

Townsend, Darrell E.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Adjunct Assistant Professor of Zoology 2007.

Townsend (Townsend-Bell), Erica Elizabeth—BA (Xavier Univ of Louisiana), MA (Washington Univ, St. Louis), PhD (ibid.); Assistant Professor of Political Science. 2012.

Trapp, James N.—BS (Kansas State Univ), MS (ibid), PhD (Michigan State Univ); Professor of Agricultural Economics. 1976.

Tree, David Alan—BS (Bingham Young Univ), MS (Univ of Illinois), PhD (ibid); Professor of Chemical Engineering. 1990.

Trenepohl, Gary L.—BSBA (Univ of Tulsa), MBA (Utah State Univ), PhD (Texas Tech Univ); Professor of Finance. 1995.

Tribble, Keith O.—BA (Fordham Univ), MA (Univ of Warwick), PhD (Univ of Washington); Professor of Foreign Languages and Literature. 1991.

Tucker, Sheryl A.—BS (Kent State Univ), PhD (Univ of North Texas); Professor of Chemistry. 2011.

Turessiy, Dorothy Melissa—BS (Massachusetts Institute of Technology), PhD (Washington Univ, St. Louis); Assistant Professor of CHS: Biochemistry and Microbiology. 2006.

Turton, Donald J.—BS (State Univ of New York), MS (Univ of Washington), PhD (Oklahoma State Univ); Associate Professor of Natural Resource Ecology and Management. 1982.

Tyagi, Avdesh—BS (Univ of Allahabad), MS (Univ of Roorkee), PhD (Univ of California, Berkeley); Associate Professor of Civil and Environmental Engineering. 1980.

Tyrl, Ronald J.—BA (Park College), MS (Oregon State Univ), PhD (ibid); Professor of Botany 1972.

Ulrich, David C.—BA (Univ of Wisconsin-Madison), MA (ibid), PhD (ibid); Professor of Mathematics. 1983.

Uno, Gordon E.—BA (Univ of Colorado), PhD (Univ of California, Berkeley); Adjunct Professor of Botany 2005.

Urlich, Andrew L.—BA (Wittenberg), JD (Case Western Reserve Univ); Associate Professor of Legal Studies in Business. 1986.

Utley, Juliana Gail—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Associate Professor of Teaching and Curriculum Leadership. 2005.

Vadunece, Jacqueline Michelle—BA (Bucknell Univ), MA (Clark Univ), PhD (ibid); Assistant Professor of Geography. 2009.

Vaidyanathan, Krishnan Rani—BTech (Banaras Hindu Univ), MSME (North Carolina State Univ, NC); PhD (ibid.); Professor of General Engineering. 2010.

Van De Poll-Knottens, Frederique—BS (San Francisco State Univ), MA (ibid), PhD (Univ of California, Davis); Professor of Foreign Languages and Literature. 1988.

Van Delinder, Jean—BA (Univ of Minnesota), MA (Univ of Kansas), PhD (ibid); Professor of Sociology. 1996.

Van Den Bussche, Ronald Alan—BS (Eastern Kentucky Univ), MS (ibid), PhD (ibid); Professor of General Engineering. 1995.

Van Ginkel, Maarten—BS (Wageningen Agricultural Univ), MS (ibid), PhD (Montana State Univ); Adjunct Professor of Plant and Soil Sciences. 2003.

VanOverbeke, Deborah Lynn—BS (Univ of Nebraska), MS (Colorado State Univ), PhD (ibid.); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Van Toulouse, Michael—BS (Univ of Quebec at Montreal), MSc (Univ of Montreal), PhD (ibid); Visiting Associate Professor of Computer Science. 2009.

Vasquez, Yolanda—BS (Univ of Texas at El Paso), PhD (Texas A&M Univ); Assistant Professor of Chemistry. 2012.

Vassar, Ben Matthew—BA (Oklahoma State Univ), MBA (ibid), PhD (ibid); Adjunct Assistant Professor of CHS: Biochemistry and Microbiology. 2009.

Vasinda, Sheri Felske—BS (North Texas State Univ), MS (ibid), EdD (Texas A&M Univ); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Vasindia, Sheri Felske—BS (North Texas State Univ), MS (ibid), EdD (Texas A&M Univ); Assistant Professor of Teaching and Curriculum Leadership. 2012.

Vasquez, Yolanda—BS (Univ of Texas at El Paso), PhD (Texas A&M Univ); Assistant Professor of Chemistry. 2012.
Wanjura, John David—BS (Texas A&M Univ.), MS (ibid.), PhD (ibid.); Assistant Professor of Biosystems & Agricultural Engineering. 2012.

Ward, Clement E.—BS (Iowa State Univ.), MS (Kansas State Univ), PhD (ibid.); Professor Emeritus of Agricultural Economics. 1978.

Warren, Ari Jon—BS (Univ of Nebraska), MS (Michigan State Univ), EdD (De-Paul Univ); Associate Professor of Applied Health and Educational Psychology. 2005.

Warren, Jason G.—BS (Oklahoma State Univ), MS (ibid), PhD (Virginia Technical Univ); Assistant Professor of Plant and Soil Sciences. 2009.

Washington, Isaac Joel—BS (Brigham Young Univ), MS (Oregon State Univ), PhD (ibid.); Assistant Professor of Human Development & Family Science. 2014.

Watson, Alan G.—BS, MS (Massey Univ), MAG (Cornell Univ), PhD (ibid.); Professor of VBS: Physiological Sciences. 1986.

Watson, Linda E.—BS (Louisiana State Univ), PhD (Univ of Oklahoma); Professor of Botany. 2009.

Watters, Craig Emory—BA (Syracuse Univ), MS (ibid), PhD (ibid); Associate Professor of Entrepreneurship and Emerging Enterprise. 2011.

Wayadande, Astri C.—BS (Univ of California), MS (Univ of Missouri, Columbia), PhD (Ohio State Univ); Assistant Professor of Entomology and Plant Pathology. 1997.

Weaver, Jimmie Dean—BS (Southern Nazarene Univ.), PhD (Univ of Kansas); Assistant Professor of Chemistry. 2012.

Webb, Gary R.—BS (Univ of North Texas), MS (ibid), PhD (Univ of Delaware); Associate Professor of Sociology. 2000.

Webb, Justin W.—BS (Virginia Commonwealth Univ); MBA (Univ of Richmond), PhD (Texas A&M Univ); Assistant Professor of Entrepreneurship and Emerging Enterprise. 2010.

Weckler, Paul R.—BS (California Polytechnic State Univ), MS (Utah State Univ), PhD (Oklahoma State Univ); Assistant Professor of Biosystems and Agricultural Engineering. 2002.

Weeks, Penny Pennington—BS (Texas A&M Univ), MS, PhD, PhD (ibid); Associate Professor of Agricultural Education. 2001.

Weeks, William Gerard—BS (Illinois State Univ), ME, PhD (Univ of Illinois), PhD (Texas A&M Univ); Professor of Agricultural Education. 1989.

Wei, Yinhong—BA (East China Jiaotong Univ), MPhil (City Univ of Hong Kong), PhD (Univ of North Carolina at Chapel Hill); Assistant Professor of Marketing. 2005.

Welch, Ginger Lea—BS (Oklahoma State Univ), MS (ibid.), PhD (ibid.); Clinical Professor of Human Development & Family Science. 2013.

Wells, Tony T.—BA (Univ of Texas at Austin), MA (Univ of Pennsylvania), PhD (Univ of Texas at Austin); Assistant Professor of Psychology. 2012.

Wen, Jun—BS (Central China Agricultural Univ), PhD (Ohio State Univ); Adjunct Professor of Botany. 2013.

West, James C.—BSEE (Univ of Oklahoma), MSEE (Univ of Kansas), PhD (ibid); Professor of Electrical and Computer Engineering. 1989.

Westhoff, B. Peter—BA (Wittenburg Univ), MFA (Univ of Connecticut); Professor of Theatre. 1985.

Wettermann, Robert Paul—BS (Univ of Connecticut), MS (Michigan State Univ), PhD (ibid); Regents Professor of Animal Science. 1972.

Wheel, Dennis L.—BS (Univ of Oklahoma), ME (Univ of Arkansas), PhD (Oklahoma State Univ); School of Educational Studies. 2009.

Whitacre, Brian—BS (Univ of Mary Washington), MS (Virginia Tech), PhD (ibid); Associate Professor of Agricultural Economics. 2006.

White, Jeffery L.—BS (Stephen F. Austin State Univ), PhD (Texas A&M); Professor of Chemistry. 2005.

White, Margaret A.—BS (Sam Houston State Univ), MBA, PhD (ibid), PhD (Texas A&M, College Station); Associate Professor of Management. 1986.

Whiteley, James Robert—BS (Oklahoma State Univ), MS, PhD, PhD (ibid); Professor of Chemical Engineering. 1995.

White, Derek F.—BS (Texas A&M Univ), MS (ibid.), PhD (Oklahoma State Univ); Adjunct Associate Professor of Biosystems & Agricultural Engineering. 2014.

Wickel, James A.—BS (New York Univ), MA (City College of New York), PhD (City Univ of New York); Professor of Physics. 1985.

Wiener, Joshua Lyle—BA (Hiram), PhD (Univ of North Carolina); Professor of Marketing. 1983.

Wilke, Thomas A.—BA (Univ of California), MA (California State Univ), PhD (Southern Illinois Univ); Professor of Geography. 1989.

Wilbert Gregory G.—BA (Hastings College), MS (Univ of Iowa), PhD (ibid.); Associate Professor of Civil and Environmental Engineering. 1991.

Wilkins, Mark Robert—BS (Purdue Univ), MS (Univ of Illinois at Urbana-Champaign), PhD (ibid); Associate Professor of Biosystems and Agricultural Engineering. 2005.

Wilkinson, Nancy B.—BA (Randolph-Macon Women's College), MA (Univ of California), PhD (ibid); Associate Professor Emeritus of Art. 1998.

Willey, Rodney Edward—BS (Cornell Univ), MS (Virginia Technical Univ), PhD (Univ of Georgia); Associate Professor of Natural Resource Ecology and Management. 2005.

Willett, Keith D.—BS (Nebraska Wesleyan Univ), MS (Univ of Nebraska at Omaha), PhD (Univ of New Mexico); Regents Service Professor of Economics. 1981.

Williams, Elizabeth A.—BA (Univ of Oklahoma), MA (Univ of Oregon), PhD (Indiana Univ); Professor of History. 1986.

Williams, Jeffrey K.—BArch (Oklahoma State Univ), MArch (ibid); Professor of Architecture. 1986.

Williams, Joseph E.—BS (New Mexico State Univ), MS, PhD (Iowa State Univ); Professor of Agricultural Economics. 1975.

Williams, Sue E.—BS (New Mexico State Univ), MA (Univ of Iowa), PhD (Oklahoma State Univ); Professor Emeritus of Human Development and Family Science. 1977.

Wilson, Duncan S.—BS (Univ of Washington), MS (Univ of Maine), PhD (Oregon State Univ); Assistant Professor of Natural Resource Ecology and Management. 2010.

Wilson, Gail W.—BS (Mercyhurst College), MS (Slippery Rock State Univ), PhD (Kansas State Univ); Associate Professor of Natural Resource Ecology and Management. 2007.

Wilson, Jeff D.—BS (Edinboro State Univ), MS (Slippery Rock State Univ), PhD (Kansas State Univ); Assistant Professor of Natural Resource Ecology and Management. 2013.

Wilson, Kevin Scott—BS (Univ of Arizona), PhD (Univ of Oregon); Assistant Professor of Biochemistry and Molecular Biology. 2011.

Wilson, Nedra Faye—BS (Northeastern Oklahoma State Univ), PhD (Univ of Texas Southwestern Graduate School); Associate Professor of CHS: Anatomy and Cell Biology. 2006.

Wilson, Rick L.—BS (Univ of Nebraska), MS (Creighton Univ), PhD (Univ of Nebraska); Professor of Management Science and Information Systems. 1999.

Wilson, Stephen M.—BA (Wabash College), MS (Univ of Tennessee, Knoxville), PhD (ibid); Regents Professor of Human Development and Family Science. 2009.

Wilson, Timothy Michael—BS (Univ of Florida), PhD (ibid); Professor of Physics. 1969.

Wine, LaRicca—BS (Florida State Univ), MS, PhD, PhD (ibid); Assistant Professor of Psychology 2006.

Winterowd, Carrie L.—BA (Univ of Missouri, Columbia), MS (Univ of Kansas), MS (ibid); Associate Professor of Applied Health and Educational Psychology. 1994.

Winters, John V.—BA (Mississippi State Univ), MA (Georgia State Univ), PhD (ibid); Assistant Professor of Economics. 2013.

Wolfram, Mark A.—BA (Western Michigan Univ), MA (Univ of Toronto), PhD (Univ of Wisconsin); Assistant Professor of Political Science. 2005.

Womack, John Calvin—BA (Univ of Arkansas), BArch (ibid), MArch (Oklahoma State Univ); Professor of Architecture. 1999.

Woods, Michael D.—BS (Arkansas Tech Univ), MS (Univ of Arkansas), PhD (Oklahoma State Univ); Professor of Agricultural Economics. 1986.

Woolsey, Conrad L.—BS (Northwest Missouri State Univ), ME, PhD (Univ of Missouri), PhD (ibid); Assistant Professor of Applied Health and Educational Psychology. 2009.

Worley, Virginia—BA (College of Great Falls), MA (State Univ of New York, Buffalo), PhD (Univ of Oklahoma); Professor of Teaching and Curriculum Leadership. 2001.

Wright, Charlotte J.—BBA (Univ of Texas-Arlington), MBA, MPH (ibid), PhD (North Texas State Univ); Professor of Accounting. 1982.

Wright, David J.—BA (Cornell Univ), MA (Harvard Univ), PhD (ibid); Professor of Mathematics. 1985.

Wu, Jiahong—BS (Beijing Univ), MS, PhD (Univ of Chicago); Associate Professor of Mathematics. 2000.

Wu, Yanqi—BSc (Ningxia Agricultural College), MSc (Sichuan Agricultural Univ), PhD (Oklahoma State Univ); Associate Professor of Plant and Soil Sciences. 2006.
Xie, Aihua—BS (Zhejiang Univ), MS (Carnegie Mellon Univ), PhD (ibid); Professor of Physics. 1997.

Xie, Xincheng—BS (Univ of Science and Technology of China), PhD (Univ of Maryland); Regents Professor of Physics. 1991.

Yan, Liulin—BS (Yangzhou Univ, China), MSc (ibid), PhD (Victoria Univ); Associate Professor of Plant and Soil Sciences. 2006.

Yang, Chulu—BS (Hanyang Univ), MS, PhD (Purdue Univ); Associate Professor of Engineering Technology Division. 2013.

Yang, Jing—BA (China Foreign Affairs Univ), MA (Oklahoma State Univ), MS, PhD (ibid); Assistant Professor of Hotel & Restaurant Administration. 2013.

Yang, Ming—BS (Beijing Univ), MS (Chinese Academy of Sciences), PhD (Ohio State Univ); Associate Professor of Botany. 2001.

Yang, Xiaoming—BS (Tongji Univ), MS, PhD (Univ of Kansas); Assistant Professor of Civil & Environmental Engineering. 2012.

Yates, Heather Noodle—BS (ibid.), ME (Pittsburg State Univ), EdD (ibid.); Associate Professor of Engineering Technology Division. 2013.

Yellin, David—BA (Gettysburg College), MA (New York Univ), PhD (Arizona State Univ); Professor of Teaching and Curriculum Leadership. 1978.

Yen, Gary G.—BS [Na'i Taipei Institute of Technology, Taiwan], MS (Marquette Univ), PhD (Univ of Notre Dame); Professor of Electrical and Computer Engineering. 1996.

Yetter Georgette Protanides—BS (Dickinson College), MS (Villanova Univ), PhD (Univ of Nebraska); Associate Professor of Applied Health and Educational Psychology. 2005.

Young, Gary E.—BS (Univ of California, Davis), MS, PhD (Univ of California, Berkeley); Professor of Mechanical and Aerospace Engineering. 1982.

Young, Tolonda Lucile—BA (Florida State Univ), MS (Montana State Univ), PhD (Arizona State Univ); Visiting Assistant Professor of Geography 2011.

Yousef, Noha H.—BS (Al Shams Univ, Egypt), PhD (Univ of Oklahoma); Assistant Professor of Microbiology & Molecular Genetics. 2013.

Yu, Chang-An—BS (National Taiwan Univ), MS, PhD (Univ of Illinois, Urbana); Regents Professor of Biochemistry and Molecular Biology. 1981.

Yu, Hongbo—BS (Peking Univ), MS (The Chinese Univ of Hong Kong), PhD (Univ of Tennessee); Associate Professor of Geography. 2005.

Yu, Linda—BS (National Taiwan Univ), MS (Univ of Illinois, Urbana), PhD (ibid); Professor of Biochemistry and Molecular Biology. 1981.

Yukihara, Eduardo Cardenal—BS (Univ of Sao Paulo), PhD (ibid); Associate Professor of Physics. 2004.

Zablath, Alex Ricardo—BS (Louisiana State Univ), MBA (ibid), PhD (Georgia State Univ); Associate Professor of Marketing. 2008.

Zarrabi, Ali A.—BS (Hamadan Agricultural College), MS (Oklahoma State Univ), PhD (ibid); Research Assistant, Entomology & Plant Pathology. 2013.

Zeng, Steve S.—BS (Jiangxi Agricultural Univ, China), MS (Mississippi State Univ), PhD (Clemson Univ); Adjunct Assistant Professor of Animal Science. 2009.

Zhang, Difei—BA (Zhejiang Univ, China), MS (Univ of New Hampshire), PhD (ibid); Assistant Professor of Natural Resource Ecology and Management. 2009.

Zhang, Guoqiong—BS (China Agricultural Univ), MS, PhD (Kansas State Univ); Associate Professor of Animal Science. 2002.

Zhang, Haolin—BS (Nanjing Agricultural Univ, China), MS (Iowa State Univ), PhD (Nanjing Agricultural Univ); Regents Professor of Plant and Soil Sciences. 1984.

Zhang, Shaoqin—BS (Beijing Univ, China), MA (Northwestern Univ), PhD (ibid); Assistant Professor of Art. 2011.

Zhang, Weili—BS (Tianjin Univ, China), MS (ibid), PhD (ibid); Professor of Electrical and Computer Engineering. 2002.

Zhang, Yuzhao—BS (Peking Univ), MS (New York Univ), PhD (Univ of California Los Angeles); Assistant Professor of Finance. 2012.

Zha, Guoping—BE (Shanghai Institute of Mechanical Engineering), MA (ibid), PhD (Univ of Virginia); Associate Professor of Educational Studies. 2002.

Zhao, Donghua H.—BS (Peking Univ), MS (College of William and Mary), PhD (ibid); Assistant Professor of Physics. 2009.

Zhu, Lan—BMed (Peking Univ), MS (Cornell Univ) PhD (ibid); Assistant Professor of Statistics. 2007.

Zierau, Roger C.—BS (Trinity College), PhD (Univ of California, Berkeley); Professor of Mathematics. 1988.

Zou, Chris Bocai—BS (Southwest Univ China), MS (ibid), PhD (Univ of Canterbury New Zealand); Assistant Professor of Natural Resource Ecology and Management. 2009.

Emeriti Members

Adolphson, Alan C.—BA (Western Washington Univ), PhD (Princeton Univ); Regents Professor Emeritus of Mathematics. 1983.

Anderson, Kim Barry—BS (Oklahoma State Univ), MS, PhD (ibid); Professor Emeritus of Agricultural Economics. 1982.

Anderson, William T.—BS (Northwestern State College), MCE (Univ of Oklahoma), EdD (Univ of Colorado); Professor Emeritus of Accounting. 1960.

Armstrong, Dale Ellsworth—BA (Centenary College), MBA (Univ of Texas), PhD (ibid); Associate Professor Emeritus of Accounting. 1965.

Barfield, Billy L.—BS (Texas A&M Univ), BS, PhD (ibid); PhD (ibid); Regents Service Professor of Biosystems and Agricultural Engineering. 1992.

Barker, Robert W.—BS (Northeastern Oklahoma State Univ), PhD (Oklahoma State Univ); Professor Emeritus of Entomology and Plant Pathology. 1975.

Bauery Carolyn Jane—BS (Oklahoma State Univ), MS, EdD (ibid); Professor Emeritus of Teaching and Curriculum Leadership. 1966.

Beet Ronald S.—BS (Illinois State Univ), MA (Michigan State Univ), PhD (Kent State Univ); Professor of Educational Studies. 1980.

Bell, Kenneth John—BS (Case Institute of Technology), MChem (Univ of Delaware), PhD (ibid); Regents Professor Emeritus of Chemical Engineering. 1961.

Berberet, Richard C.—BA (Carroll College), PhD (Univ of Nebraska); Professor of Entomology and Plant Pathology. 1971.

Berry Joe G.—BS (Oklahoma State Univ), MS, PhD (Kansas State Univ); Professor Emeritus of Animal Science. 1980.

Bertholf, Dennis Earl—BS (Univ of Kansas), MA (New Mexico State Univ), PhD (ibid); Professor Emeritus of Mathematics. 1968.

Bice, Garry R.—BS (Cornell Univ), MS, PhD (Ohio State Univ); Professor Emeritus of Teaching and Curriculum Leadership. 1985.

Bokorney, George Baker—BS (Oklahoma State Univ), MS, EdD (Univ of Oregon); Professor Emeritus of Hotel and Restaurant Administration. 1971.

Bruneau, L. Herbert—BS (McGill Univ), MA (Univ of Texas), PhD (ibid); Professor Emeritus of Zoology. 1955.

Buchanan, David S.—BS (North Dakota State Univ), MS (Univ of Nebraska), PhD (ibid); Professor Emeritus of Animal Science. 1980.

Bush, Linville John—BS (Univ of Kentucky), MS (Ohio State Univ), PhD (Iowa State Univ); Professor Emeritus of Animal Science. 1958.

Campbell, Noma Jo—BS (Oklahoma State Univ), MS (Kansas State Univ), EdD (Virginia Polytechnic Institute and State Univ); Professor of Educational Studies. 1975.

Carter, Sally A.—BS (Arkansas Technical Univ), MFd (ibid), EdS (ibid); PhD (ibid); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1990.

Chambers, Billee J.—BS (Western Illinois Univ), MS (Purdue Univ), PhD (Univ of Georgia); Associate Professor Emeritus of Agricultural Education. 1989.

Chandler John P.—BS (Lehigh Univ), MS (Indiana Univ), PhD (ibid.); Professor Emeritus of Computer Science. 1970.

Chase, Cida S.—BA (Kansas State Teachers College), MA (Univ of Oklahoma), MS (Kansas State Teachers College), PhD (Univ of Oklahoma); Professor Emeritus of Foreign Languages and Literature. 1977.

Collins, Thomas C.—BS (Univ of Georgia), MS (George Washington Univ), MS (PhD (Univ of Florida); Professor Emeritus of Physics. 1991.

Coonrad, Harold A.—BS (Oklahoma State Univ), MS, PhD (Indiana Univ); Professor Emeritus of Business Education and Administrative Services. 1948.

Croy, Jerry D.—BA (Oklahoma State Univ), MA (Kansas State Univ), EdD (Univ of Tulsa); Associate Professor Emeritus of Geography. 1966.

Cummins, Richard Lee—BS (Univ of Illinois), MS, PhD (ibid); Associate Professor Emeritus of Electrical and Computer Engineering. 1963.

Cuperus, Gerrit—BS (Univ of Minnesota, Morris), MS (Univ of Minnesota, St Paul), PhD (ibid); Professor Emeritus of Entomology and Plant Pathology. 1982.

Devlin, Joseph Paul—BS (Regis College), PhD (Kansas State Univ); Professor Emeritus of Chemistry. 1961.

Dixon, George Sam—BS (Univ of Georgia), MS (PhD (ibid); Professor Emeritus of Entomology and Plant Pathology. 1958.
Dugger, Cecil W.—BS (Texas &
M Univ.), MED (ibid.), Ed.D (Ohio
State Univ.); Professor Emeritus of
Aviation and Space Education. 1965.

Durham, Norman Nevell—BS (North
Texas State Univ.), MS (ibid.), PhD (Univ
of Texas); Professor Emeritus of
Microbiology and Molecular Genetics.
1954.

Edgley, Betty M.—BS (Wayland Col-
gege), MED (Univ of Oklahoma), Ed.D (Ohio
State Univ.); Professor Emeritus of
Applied Health and Educational Psy-
chology. 1977.

Edwards, Lewis H.—BS (Oklahoma
State Univ.), PhD (North Dakota State
Univ.); Professor Emeritus of Plant and

Eikenberry, Raymond D.—BS (Okla-
ahoma State Univ.), MS (Clemson Univ.),
PhD (ibid.); Professor Emeritus of
Entomology and Plant Pathology. 1964.

Essenberg, Margaret K.—BA (Oberlin
College), PhD (Brandeis Univ.); Regent
Professor Emeritus of Biochemistry and

Essenberg, Richard—BS (California
Institute of Technology), PhD (Harvard
Univ.); Professor of Biochemistry and

Ewing, Margaret S.—BA (Oberlin
College), MS (Oklahoma State Univ.),
PhD (ibid.); Professor Emeritus of

Filomeno, Alexander B.—BS (Univ of
Rhode Island), MS (Michigan State
Univ), PhD (ibid.); Professor Emeritus of

Fischer, Leroy Henry—BA (Univ of
Illinois), MA (ibid), PhD (ibid.); Regents
Professor Emeritus of History. 1946.

Folks, John Leroy—BA (Oklahoma
State Univ.), MS (ibid), PhD (Iowa State
Univ); Regents Service Professor Emeritus

Forbes, Sheyla H.—BS (Oklahoma
State Univ), MS (ibid), PhD (ibid.);
Associate Professor Emeritus of Agricul-
tural Education. 1983.

Frank, Gerald D.—BA (Valparaiso Uni-
versity), SM (Union Theological Semi-
inary), DMA (Univ of Cincinnati); Professor

Gamble, Rondal Ross—BS (Central
State College, Oklahoma), MED (Adams
State College), PhD (Univ of Oklahoma);
Professor Emeritus of Applied Health and
Educational Psychology 1996.

Garner, J Lloyd—BS (East Central
State College, Oklahoma), MED (Univ of
Oklahoma); Associate Professor Emeritus
of Business Education and Administra-
tive Services. 1942.

Gee, Lynn Lamarr—AB (Brigham Young
Univ), MS (Colorado A&M College),
PhD (Wisconsin); Professor Emeritus of
Microbiology and Molecular Genetics.
1954.

Gholson, Robert Karl—BA (Univ of
Chicago), BS (Univ of Illinois), PhD (ibid.);
Professor Emeritus of Biochemistry and
Molecular Biology. 1962.

Gill, Donald R.—BS (Montana Univ),
MS (ibid), PhD (Oregon State Univ);
Professor Emeritus of Animal Science.
1966.

Guenther, John James—BS (Louisiana
State Univ), MS (ibid), PhD (Texas & M
Univ.); Professor Emeritus of Animal

Habily, Raymond N.—BA (American
University), LLB (Univ of Jerusalem),
MAPA (Univ of Minnesota), PhD (ibid.);
Professor Emeritus of Political Science.
1965.

Hackett, Neil John—BA (Southern
Illinois Univ), MA (ibid), PhD (Univ of
Cincinnati); Professor Emeritus of History.
1969.

Hair, Jackie Alexander—BS (Clemson
Univ), MS (ibid), PhD (Virginia Poly-
technic Institute); Regents Professor Emeritus of

Hair, William H.—BArch (Ohio State
Univ), MS (Rollins); Professor of

Halligan, James E.—BS (Iowa State
Univ), MS (ibid), PhD (Iowa State Univ);
Professor Emeritus of Educational Studies.

Hamm, B. Curtis—BS (Oklahoma State
Univ), MBA (ibid), PhD (Univ of Texas);
Professor Emeritus of Marketing. 1966.

Hansen, David Albert—BArch (Univ of
Iowa), MArch (ibid), PhD (ibid.);
Professor Emeritus of Architecture.
1980.

Hanson, Bertil Lennart, BS (Northwest-
eroastern Univ), MA (Univ of Chicago),
PhD (ibid.); Professor Emeritus of Political
Science. 1959.

Harriman, Helga H.—BA (Wells College),
MA (Oklahoma State Univ), PhD (ibid.);
Professor Emeritus of History. 1975.

Harriman, Lynda C.—BS (Colorado State
Univ), MS (Univ of Illinois), PhD (ibid.);
Professor of Human Development and Family
Science. 1984

Hecock, Richard Douglas—BA (Albion
College), MA (Wayne State Univ),
PhD (Clark Univ.); Regents Service Professor

Hedrick, George E.—BA (Adams State
College), MS (Iowa State Univ), PhD (ibid.);
Regents Professor Emeritus of Computer Science.
1970.

Henrickson, Robert L.—BS (Kansas State
Univ), MS (ibid), PhD (Univ of Missouri);
Professor Emeritus of Animal Science. 1956.

Holley, Wesley—BS (Oklahoma State
Univ), MS (ibid), Ed.D (ibid);
Professor Emeritus of Agricultural Education.
1980.

Hughes, Joe H.—BS (Clemson Univ),
MS (Oklahoma State Univ), PhD (ibid);
Professor Emeritus of Animal Science.

Hughes, Robert K.—BS (The Citadel),
MS (Oklahoma State Univ), PhD (ibid);
Professor Emeritus of Civil and Environmental
Engineering. 1983.

Jadlow, Janice Wicksteed—BA (Miami
Univ.), MA (Univ of Virginia), PhD (Oklahoma
State Univ); Associate Professor Emeritus of

Jadlow Jr., Joseph M.—BA (Central
Missouri State College), MS (ibid), PhD (Univ of
Virginia); Regents Service Professor Emeritus of
Economics. 1968.

Jewesbury, George Frederick—BA (Man-
kato State College), MA (Univ of
Washington), PhD (ibid); Professor Emeritus of
History. 1967.

Jope, John—BS (Univ of Tulsa), MS (Oklahoma State Univ), PhD (ibid.);
Regents Professor Emeritus of Mathematics.
1964.

Johnson, Gordon V.—BS (North Dakota
State Univ), MS (Univ of Nevada), PhD (Univ
of Nebraska); Regents Professor Emeritus of

Johnson, Wilbur D. Deke—BS (Rocky
Mountain College), MED (Univ of Monta-
na), EdD (Western Michigan Univ); Associa-
ted Professor Emeritus of Educational Studies.
1974.

Johnston, Thomas D.—BS (Kansas State
Teachers College), MS (Fort Hays Kansas
State College), EdD (Univ of Neb.); Professor
Emeritus of Teaching and Curriculum
Leadership. 1969.

Jordan, Thomas D.—BS (Tri-State
Univ), MS (Oklahoma State Univ), PhD (ibid.);
Associate Professor Emeritus of Architecture.
1978.

Kamm, Robert B.—BA (Univ of Northern
Iowa), MA (Univ of Minnesota), PhD (ibid);
Professor Emeritus of Educational Studies.
1958.

Kimbell, Janet I.—BS (Southeastern
Oklahoma State Univ), MPA (Univ of Texas,
Arlington), PhD (Oklahoma State Univ);
Associate Professor of Accounting. 1979.

Kincannon, Don F.—BA (Oklahoma State
Univ), MS (ibid), PhD (ibid); Regents
Professor Emeritus of Civil and Environmental
Engineering. 1966.

Kirby, James S.—BS (Oklahoma State
Univ), MS (ibid), PhD (Iowa State Univ);
Professor Emeritus of Plant and Soil Sciences.
1969.

Kletke, Darrel Dean—BS (Oklahoma State
Univ), MS (ibid), PhD (ibid); Professor
Emeritus of Agricultural Economics.
1966.

Knaup, Patricia Kain—BS (Univ of
Nebraska-Lincoln), MS (ibid), PhD (ibid);
Professor of Human Development and Family

Knight, Clyde B.—BS (East Central
State College, Oklahoma), MS (Oklahoma
State Univ), EdD (ibid); Professor Emeritus of
Educational Studies. 1966.

Kopecky, Pauline W.—BBA (Southwest-
ern Univ.), MED (Univ of Texas), PhD (Univ
of Houston); Associate Professor Emeritus of
Economics. 1967.

Krenz, Eugene G.—BS (Cornell Univ),
MS (Univ of Minnesota), PhD (ibid); Professor

Krieger, Ruth Haas—BBA (Ohio Univ),
MBA (Univ of Cincinnati), PhD (ibid);
Associate Professor Emeritus of Marketing.
1982.

Kulling, Frank Allen—BS (Univ of
Wisconsin), MS (Univ of Nebraska); Associa-
ted Professor Emeritus of Agricultural Science.
1983.

Langswig, John Edward—BS (Univ of
Michigan), MS (State Univ of New York,
College of Forestry), PhD (ibid); Professor Emeritus of Natural Resource Ecology
and Management. 1971.

Leach, Franklin Rollin—BA (Hardin-Simmons Univ), PhD (Univ of Texas); Professor
Emeritus of Biochemistry and Molecular Biology.
1959.

Leising, James G.—BS (Univ of Nebras-
ka), MS (Iowa State Univ), PhD (ibid);
Professor Emeritus of Agricultural Education.
1995.

Lloyd, John F.—BS (Univ of Illinois),
MS (ibid), PhD (ibid); Professor Emeritus of
Civil and Environmental Engineering. 1970.

Lowery, Richard L.—BSME (Texas Tech
Univ), MS (Oklahoma State Univ), PhD
(Purdue Univ); Professor Emeritus of Mechani-

Luecke, Neil Robert—BA (Midland College), MA (Johns Hopkins Univ), PhD (ibid);

Lynd, Julian Q.—BS (Univ of Arkansas),
MS (Michigan State Univ), PhD (ibid);
Professor Emeritus of Plant and Soil Sciences.
1951.

Martin, Joel Jerome—BS (South Dakota
School of Mines and Technology), MS (ibid),
PhD (Iowa State Univ); Professor Emeritus of
Physics. 1969.
Max, Elizabeth—BS (Texas Woman’s Univ), MLS (North Texas State Univ); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1970.

Maxwell, Charles V.—BS (Univ of Georgia), MS (ibid), PhD (Univ of Wisconsin); Professor Emeritus of Animal Science. 1968.

McCaw, Bernard Dean—BS (Oklahoma State Univ), MS (ibid), PhD (Kansas State Univ); Professor of Horticulture and Landscape Architecture. 1985.

McKinley, Kenneth H.—BA (Tarkio College, Missouri), MA (Univ of Iowa), PhD (ibid); Professor Emeritus of Teaching and Curriculum Leadership. 1973.

McMurphy, Wilfred E.—BS (Oklahoma State Univ), MS (ibid), PhD (Kansas State Univ); Professor Emeritus of Plant and Soil Sciences. 1964.

Mills, Terence (Ted) John—BS (Western Illinois Univ), MS (ibid), PhD (Indiana Univ); Professor Emeritus of Teaching and Curriculum Leadership. 1970.

Mitchell, Earl Douglas—BS (Xavier Univ), MS (Michigan State Univ), PhD (ibid); Professor Emeritus of Biochemistry and Molecular Biology. 1967.

Mize, Joe H.—BSIE (Texas Tech Univ), MSIE (Purdue Univ), PhD (ibid); Regents Professor Emeritus of Industrial Engineering and Management. 1972.

Monroe, Nancy—BA (Univ of Iowa), MA (ibid), PhD (Univ of Kansas); Associate Professor Emeritus of Communication Sciences and Disorders. 1978.

Moomaw, Ronald—BA (Univ of Virginia), MA (Princeton Univ), PhD (ibid); Professor Emeritus of Economics. 1972.

Moretti, Peter M.—BS (California Institute of Technology), MS (ibid), PhD (Stanford Univ); Professor Emeritus of Mechanical and Aerospace Engineering. 1970.

Motes, James E.—BS (Kansas State Univ), MS (ibid), PhD (ibid); Professor Emeritus of Horticulture and Landscape Architecture. 1977.

Muray, Jay C.—BS (Utah State Univ), MS (Colorado State Univ), PhD (Cornell Univ); Professor Emeritus of Plant and Soil Sciences. 1959.

Nelson, Eldon Carli—BS (Ohio State Univ), MS (ibid), PhD (ibid); Regents Professor Emeritus of Biochemistry and Molecular Biology. 1963.

Nofziger, David L.—BA (Goshen College), MS (Purdue Univ), PhD (ibid); Professor Emeritus of Plant and Soil Sciences. 1974.

Oaks, Audrey Eleanor—BS (State Univ of New York, Buffalo), MS (Univ of Wisconsin), EdD (Oklahoma State Univ); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1964.

Olson, Kent W.—BS (Arizona State Univ), MA (Univ of Oregon), PhD (ibid); Professor Emeritus of Economics. 1974.

Owens, Frederic N.—BS (Univ of Minnesota), PhD (ibid); Regents Professor Emeritus of Animal Science. 1974.

Owby, Arnola C.—BS (Oklahoma State Univ), MS (ibid), EdD (ibid); Professor Emeritus of Business Education and Administrative Services. 1960.

Payne, Richard Newton—BS (Oklahoma State Univ), MS (Ohio State Univ), PhD (ibid); Professor Emeritus of Horticulture and Landscape Architecture. 1957.

Pettyjohn, Wayne A.—BA (Univ of South Dakota), MA (ibid), PhD (Boston Univ); Regents Professor Emeritus of Geology. 1980.

Pinkston, Kenneth N.—BS (Oklahoma State Univ), PhD (ibid); Professor Emeritus of Entomology and Plant Pathology. 1970.

Post, Gene L.—BA (Bethany Nazarene College), MEd (Univ of Oklahoma), EdD (Oklahoma State Univ); Professor Emeritus of Teaching and Curriculum Leadership. 1961.

Price, Richard Graydon—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor Emeritus of Entomology and Plant Pathology. 1965.

Price III, Edward Ollington—BA (Texas A&M Univ), PhD (ibid); Associate Professor Emeritus of Economics. 1979.

Pritchard, Jack W.—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor Emeritus of Agricultural Education. 1968.

Randall, Charles R.—BA (Univ of Wisconsin, Madison), MBA (ibid), PhD (ibid); Associate Professor of Accounting. 1981.

Ray, Darrel D.—BA (Northwestern State College, Oklahoma), MS (Oklahoma State Univ), EdD (ibid); Professor Emeritus of Teaching and Curriculum Leadership. 1965.

Ray, Frederick—BS (Ohio State Univ), MS (ibid), PhD (Purdue Univ); Professor Emeritus of Animal Science. 1978.

Reed, Robert M.—BS (Univ of Illinois), MS (ibid), PhD (Purdue Univ); Professor Emeritus of Plant and Soil Sciences. 1950.

Reisbeck, Robert Fred—BS (Colorado State Univ), MS (Oklahoma State Univ), EdD (ibid); Associate Professor Emeritus of Agricultural Education. 1966.

Rhoten, Ronald P.—BS (Univ of Texas), MS (ibid), PhD (ibid); Professor Emeritus of Electrical and Computer Engineering. 1969.

Robinson, David W.—BS (Oklahoma State Univ), MFS (North Carolina State Univ), EdD (ibid); Professor Emeritus of Natural Resource Ecology and Management. 1962.

Robinson, Robert Louis—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Regents Professor Emeritus of Chemical Engineering. 1965.

Rooney, John F.—BS (Illinois State Univ), MS (ibid), PhD (Clark Univ); Regents Professor Emeritus of Geography. 1969.

Rouse, Roscoe—BA (Univ of Oklahoma), MA (Univ of Michigan), PhD (ibid); Librarian Emeritus of Library. 1967.

Sander, David A.—BS (Univ of Nebraska), MS (ibid), PhD (Purdue Univ); Professor Emeritus of Plant and Soil Sciences. 1957.

Sandakov, Kenneth Douglas—BS (Concordia College), MS (Univ of North Dakota), PhD (Univ of Illinois); Professor Emeritus of Psychology 1965.

Santalman, Paul W.—BS (Univ of Maryland), MS (Michigan State Univ), PhD (Ohio State Univ); Regents Professor Emeritus of Plant and Soil Sciences. 1962.

Sare, Harold Victor—BA (Oklahoma State Univ), MA (ibid); Regents Professor Emeritus of Political Science. 1963.

Sauer, John R.—BS (St John’s Univ), MS (New Mexico Highlands Univ), PhD (Tulane Univ); Regents Professor Emeritus of Entomology and Plant Pathology. 1969.

Schlottmann, Robert S.—BA (Louisiana State Univ), MS (Tulane Univ), PhD (Louisiana State Univ); Professor Emeritus of Psychology. 1970.

Scott, Margaret M.—BA (Univ of Northern Colorado), MA (New Mexico State Univ), PhD (ibid); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1987.

Seal, James M.—BS (Abilene Christian College), MA (Southwest Texas State Univ), PhD (East Texas State Univ); Professor of Educational Studies. 1968.

Segal, William E.—BA (Yankton College), MED (Univ of Texas at El Paso), EdD (Univ of Arkansas); Professor Emeritus of Educational Studies. 1969.

Self, Patricia A.—BA (Univ of Kansas), MA (ibid), PhD (ibid); Professor Emeritus of Human Development and Family Science. 1988.

Sherwood, Peter M. A.—BSc (St. Andrew’s Univ, U.K.), MA (ibid.), FMed (ibid.), DSc (Cambridge Univ, U.K.); Regents Professor Emeritus of Physics. 2004.

Sholar, James R.—BS (Univ of Tennessee, Martin), MS (Oklahoma State Univ), PhD (ibid); Professor Emeritus of Plant and Soil Sciences. 1975.

Singleton, Larry L.—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Minnesota); Professor Emeritus of Entomology and Plant Pathology. 1976.

Smallwood, James M.—BS (East Texas State Univ), MA (ibid), PhD (Texas Tech Univ); Professor Emeritus of History. 1975.

Smith, Charles L.—BM (Central Methodist College), MA (Univ of Colorado), MA (Univ of Northern Colorado), EdD (ibid); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1972.

Smith, Edward L.—BS (Oklahoma State Univ), MA (ibid), PhD (Univ of Minnesota); Regents Professor Emeritus of Plant and Soil Sciences. 1966.

Spaulding, Robert M.—AB (Univ of Michigan), AM (ibid), PhD (ibid); Professor Emeritus of History. 1971.

St Clair James Kenneth—BA (North Texas State Univ), BM (ibid), MME (North Texas State Univ), EdD (Univ of Texas); Professor Emeritus of Educational Studies. 1964.

Stanners, Robert Francis—BS (Univ of Wisconsin), PhD (ibid); Professor Emeritus of Psychology. 1966.

Steinbrink, John E.—BA (Univ of Idaho), MAT (Univ of Chicago), EdD (Univ of Georgia); Professor Emeritus of Teaching and Curriculum Leadership. 1990.

Stewart, Gary F.—BS (Oklahoma State Univ), MS (ibid), PhD (Virginia Polytechnic Inst and State Univ); Professor Emeritus of Plant and Soil Sciences. 1973.

Stieglitz, Jim—I—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Missouri); Professor Emeritus of Plant and Soil Sciences. 1970.

Swamy Nyayapathi V.V.—BS (Siddharth College), MS (Wilson College), PhD (Florida State Univ); Professor Emeritus of Physics. 1968.

Taliaferro, Charles M.—BS (Oklahoma State Univ), MS (Texas A&M Univ), PhD (ibid); Regents Professor Emeritus of Plant and Soil Sciences. 1968.

Terry, H. Robert—BS (Oklahoma State Univ), MS (ibid), PhD (Ohio State Univ); Regents Service Professor of Agricultural Education. 1969.
Thornton, John W.—BS (Oklahoma State Univ), PhD (Univ of Washington); Professor Emeritus of Zoology. 1960.

Toetz, Dale William—BS (Univ of Wisconsin), MS (ibid), PhD (Indiana Univ); Professor Emeritus of Zoology. 1965.

Totusek, Robert—BS (Oklahoma State Univ), MS (Purdue Univ), PhD (ibid); Professor Emeritus of Animal Science. 1952.

Traxel, Vernon—BS (Illinois State Univ), MEd (ibid), EdD (Univ of Illinois); Professor Emeritus of Teaching and Curriculum Leadership. 1963.

Tucker, Billy B.—BS (Oklahoma State Univ), MS (ibid), PhD (Univ of Illinois); Regents Professor Emeritus of Plant and Soil Sciences. 1956.

Tweedie, Stephen W.—BA (Cornell Univ), MEd (ibid), PhD (Syracuse Univ); Associate Professor Emeritus of Geography. 1971.

Usry, Milton F.—BBA (Baylor Univ), MBA (Univ of Houston), PhD (Univ of Texas); Regents Professor Emeritus of Accounting. 1961.

Vishniac, Helen S.—BA (Univ of Michigan), MA (Radcliffe College), PhD (Columbia Univ); Professor Emeritus of Microbiology and Molecular Genetics. 1978.

Von Broembsen, Sharon Lee—BS (Lock Haven Univ), PhD (Washington State Univ); Professor Emeritus of Entomology and Plant Pathology. 1988.

Wagner, Donald G.—BS (Ohio State Univ), MS (Cornell Univ), PhD (ibid); Professor Emeritus of Animal Science. 1965.

Wall, George R.—BS (North Carolina State College), MS (Univ of Delaware), PhD (Oklahoma State Univ); Professor Emeritus of Biochemistry and Molecular Biology. 1956.

Walters, Lowell Eugene—BS (Oklahoma State Univ), MS (Massachusetts State College), PhD (Oklahoma State Univ); Professor Emeritus of Animal Science. 1946.

Warden, Paul George—BA (Baldwin-Wallace College), MA (Kent State Univ), PhD (ibid); Professor Emeritus of Applied Health and Educational Psychology. 1970.

Weeds, David Lee—BS (Oklahoma State Univ), MS (ibid), PhD (ibid); Professor Emeritus of Statistics. 1957.

Westhaus, Paul Anthony—BS (Saint Louis Univ), PhD (Washington Univ); Professor Emeritus of Physics. 1968.

Wiggins, Kenneth Edward—BS (Troy State College), MS (ibid), EdD (Auburn Univ); Professor Emeritus of Aviation and Space Education. 1962.

Wilguest, John H.—BS (Indiana State Univ), MS (ibid), PhD (Univ of Arkansas); Professor of Accounting. 1979.

Wilhm, Jerry Leo—BS (Kansas State Teachers College), MS (ibid), PhD (Oklahoma State Univ); Professor Emeritus of Zoology. 1966.

Wilkinson, Janet Barbara—BA (Univ of New Hampshire), MS (Purdue Univ), PhD (ibid); Associate Professor Emeritus of Teaching and Curriculum Leadership. 1971.

Wittwer, Robert E.—BS (State Univ of New York), MS (ibid), PhD (ibid); Professor Emeritus of Natural Resource Ecology and Management. 1982.

Wolfe, John E.—BA (Bucknell Univ), MA (Univ of California), PhD (ibid); Professor Emeritus of Mathematics. 1974.

Wright, Russell E.—BS (Iowa State Univ), MS (ibid), PhD (Univ of Wisconsin); Professor Emeritus of Entomology and Plant Pathology. 1976.

Yarlagadda, Radha K. Rao—BE (BMS College of Engineering), MS (South Dakota State Univ), PhD (Michigan State Univ); Professor of Electrical and Computer Engineering. 1966.
Course Descriptions

For the most current course descriptions, view online at registrar.okstate.edu.

This Catalog offers information about the academic programs and support services of the University. This Catalog is as accurate as possible, but the information may not remain current for all of the academic year. Circumstances may prompt changes in courses, course content, credit, fees, regulations, semester calendar, curriculum, degrees offered, and other University matters. Such changes authorized by the University apply both to prospective students and to those previously enrolled, unless the latter are specifically exempted.

Not all courses are offered each semester or session. Students should consult the current class schedule and the departmental office for specific details regarding frequency of offerings in specific courses.

Course descriptions are listed alphabetically by fields. (See the BIOM prefix and the OSU Center for Health Sciences Catalog for osteopathic medicine course descriptions.)

Explanation of Course Descriptions

A course description is comprised of the following elements, in order:

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 as to student classification, the second and third digits identify the course within the field and the last digit identifies the number of semester credit hours the course carries. A course number beginning with 0 indicates that the course does not carry University credit. A course number ending in 0 indicates that the course carries variable credit. An asterisk (*) following the four-digit number indicates the course is approved for graduate credit. Those numbered 5000 and above are primarily for graduate students, and only graduate students and selected seniors with consent of the instructor may enroll in them.

Graduate Sections of Mixed Credit 3000 or 4000-level Courses

(Undergraduate courses that are approved for graduate credit). Many courses have been approved to be offered for both undergraduate and graduate credit. These 3000 and 4000-level courses are identified by an asterisk next to the course number in the Catalog. A student must perform extra work as specified in the course syllabus to earn graduate credit for such a class. The instructor for any course for which graduate credit is received must be a member of the Graduate Faculty. Mixed courses which are available for both undergraduate and graduate credit are identified as to which type of credit is being offered through the use of different section numbers for each type of credit. Undergraduate sections are denoted by section numbers that are wholly numeric, and graduate sections contain the letter ‘G’ in the section number, usually in the last digit. For example, any semester PHYS 4513* (Introductory Quantum Mechanics) is offered for both undergraduate and graduate credit, at least two sections may be open. PHYS 4513-001 will be for students seeking undergraduate credit and PHYS 4513-01G for students seeking graduate credit. Both sections will meet at the same time, on the same days, in the same classroom, with the same instructor. For further information regarding this policy, view the FAQ section of the Registrar website at registrar.okstate.edu.

General Education Requirement Codes. The capital letters in parentheses preceding some course titles designate courses fulfilling various undergraduate general education requirements. (See “Academic Regulations.”) Not all courses that are approved for general education credit are offered each term. Please refer to the General Education course search on SIS to locate what courses are offered by term or for a complete list view the General Education Credit Course List on the Registrar website at registrar.okstate.edu.

Course Title. The title of the course is printed in boldface letters.

Statement of Variable Credit. Each course number ending in zero is followed by a statement of the credit that may be earned. Typical entries are 1-6 credits, maximum 6 and 1-3 credits, maximum 12, the first part of the entry indicating the permissible credit per enrollment, followed by a statement of the maximum credit which may be earned in the course through repeated enrollment.

Laboratory Hours. If a course contains a laboratory, the number per week of laboratory hours are stated, e.g., Lab 3.

Prerequisite(s). Prerequisites from the same department as the course being described are listed first, with no departmental abbreviation and in increasing numerical order. If from another department, that departmental abbreviation must precede the number of the prerequisite course. Those courses having prerequisites from both within and from outside the department bear combination entries such as 3303 and STAT 2012. Prerequisites are listed in the following manner:

For example:

- Prerequisites: A or B or C
- A or B or C is acceptable
- Prerequisites: A or B, C
- A or B is acceptable, and C is required
- Prerequisites: A, B and C
- A and B and C are required
- Prerequisites: A, B or C
- A and either B or C
- Prerequisites: A, B, or C
- Both A and B, or C required
- Prerequisites: A or B and C
- Either A or both B and C required
- Prerequisites: A or equivalent and B
- Both A, or the equivalent of A, and B are required
- Prerequisites: A, and B or equivalent
- Both A and B, or the equivalent of B, are required
- Prerequisites: A and B, or equivalents
- Equivalents of both A and B are acceptable

Where no prerequisites are listed for courses numbered 3000 or 4000 level, it is understood that the prerequisite is approval of the student’s adviser. The prerequisite for courses numbered 5000 or 6000 level is graduate standing in addition to any other prerequisites listed. Instructors may waive prerequisites when student background justifies this action. Prerequisites for lower-division courses may also be waived by a student’s academic adviser if examination of the student’s academic record warrants such a waiver. Prior approval of instructor may be required in problems courses, independent study, internships, dissertation courses, and courses taught in a professional school.

Description of Course Content. The content of the course and its major emphases are described. Courses which are taught under another name and number are indicated by the statement “same course as.” Credit may not be earned in both courses so cross-referenced.

Courses with Equivalent or Overlapping Content

Equivalent Courses. Some courses are academically identical or equivalent to other courses that are at a different level or are offered in different departments. Such equivalent courses (sometimes referred to as crosslisted) should include “same as…” statements in their catalog course descriptions. Equivalent courses are denoted on the official transcript in accordance with the repeat policy (see Academic Regulation 6.13). Credit for only one of the courses will count in the earned hours section of the transcript.

Overlapping Courses. Other 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 catalog course descriptions. Overlapping courses are not listed as repeats in SIS, but students may not apply credit for both significantly overlapping 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 overlapping/redundant course may not be used to fulfill requirements for that program, including major hours, elective hours, total hours, etc.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;S</td>
<td>Arts and Sciences</td>
</tr>
<tr>
<td>ACCT</td>
<td>Accounting</td>
</tr>
<tr>
<td>AERO</td>
<td>Aerospace Studies--Air Force</td>
</tr>
<tr>
<td>AG</td>
<td>Agriculture</td>
</tr>
<tr>
<td>AGCM</td>
<td>Agricultural Communications</td>
</tr>
<tr>
<td>AGEC</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>AGED</td>
<td>Agricultural Education</td>
</tr>
<tr>
<td>AGIN</td>
<td>International Agriculture</td>
</tr>
<tr>
<td>AGL E</td>
<td>Agricultural Leadership</td>
</tr>
<tr>
<td>AMIS</td>
<td>American Indian Studies</td>
</tr>
<tr>
<td>AMST</td>
<td>American Studies</td>
</tr>
<tr>
<td>ANSI</td>
<td>Animal Science</td>
</tr>
<tr>
<td>ANTH</td>
<td>Anthropology</td>
</tr>
<tr>
<td>ARCH</td>
<td>Architecture</td>
</tr>
<tr>
<td>ART</td>
<td>Art</td>
</tr>
<tr>
<td>ASL</td>
<td>American Sign Language</td>
</tr>
<tr>
<td>ASTR</td>
<td>Astronomy</td>
</tr>
<tr>
<td>AVED</td>
<td>Aviation Education</td>
</tr>
<tr>
<td>BADM</td>
<td>Business Administration</td>
</tr>
<tr>
<td>BAE</td>
<td>Biosystems and Agricultural Engineering</td>
</tr>
<tr>
<td>BCOM</td>
<td>Business Communications</td>
</tr>
<tr>
<td>BHON</td>
<td>Business Honors</td>
</tr>
<tr>
<td>BIOC</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>BIOL</td>
<td>Biological Science</td>
</tr>
<tr>
<td>BIOM</td>
<td>Biomedical Sciences</td>
</tr>
<tr>
<td>BOT</td>
<td>Botany</td>
</tr>
<tr>
<td>CDIS</td>
<td>Communication Sciences and Disorders</td>
</tr>
<tr>
<td>CHE</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>CHEM</td>
<td>Chemistry</td>
</tr>
<tr>
<td>CHIN</td>
<td>Chinese</td>
</tr>
<tr>
<td>CIED</td>
<td>Curriculum and Instruction Education</td>
</tr>
<tr>
<td>CIVE</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>CMT</td>
<td>Construction Management Technology</td>
</tr>
<tr>
<td>CPSY</td>
<td>Counseling Psychology</td>
</tr>
<tr>
<td>CS</td>
<td>Computer Science</td>
</tr>
<tr>
<td>CTED</td>
<td>Career and Technical Education</td>
</tr>
<tr>
<td>DHM</td>
<td>Design, Housing and Merchandising</td>
</tr>
<tr>
<td>DIVR</td>
<td>Diversity</td>
</tr>
<tr>
<td>ECEN</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>ECON</td>
<td>Economics</td>
</tr>
<tr>
<td>EDLE</td>
<td>Educational Leadership</td>
</tr>
<tr>
<td>EDTC</td>
<td>Educational Technology</td>
</tr>
<tr>
<td>EDUC</td>
<td>Education</td>
</tr>
<tr>
<td>EEE</td>
<td>Entrepreneurship and Emerging Enterprise</td>
</tr>
<tr>
<td>EET</td>
<td>Electrical Engineering Technology</td>
</tr>
<tr>
<td>ENGL</td>
<td>English</td>
</tr>
<tr>
<td>ENGR</td>
<td>Engineering</td>
</tr>
<tr>
<td>ENSC</td>
<td>Engineering Science</td>
</tr>
<tr>
<td>ENTO</td>
<td>Entomology</td>
</tr>
<tr>
<td>ENVR</td>
<td>Environmental Science</td>
</tr>
<tr>
<td>EPSY</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>ETM</td>
<td>Engineering and Technology Management</td>
</tr>
<tr>
<td>FDSC</td>
<td>Food Science</td>
</tr>
<tr>
<td>FIN</td>
<td>Finance</td>
</tr>
<tr>
<td>FLL</td>
<td>Foreign Languages and Literatures</td>
</tr>
<tr>
<td>FPST</td>
<td>Fire Protection and Safety Technology</td>
</tr>
<tr>
<td>FREN</td>
<td>French</td>
</tr>
<tr>
<td>FRNS</td>
<td>Forensic Sciences</td>
</tr>
<tr>
<td>FSEP</td>
<td>Fire Safety and Explosion Protection</td>
</tr>
<tr>
<td>GENE</td>
<td>Genetics</td>
</tr>
<tr>
<td>GENG</td>
<td>General Engineering</td>
</tr>
<tr>
<td>GENT</td>
<td>General Technology</td>
</tr>
<tr>
<td>GEOG</td>
<td>Geography</td>
</tr>
<tr>
<td>GEOL</td>
<td>Geology</td>
</tr>
<tr>
<td>GRAD</td>
<td>Graduate</td>
</tr>
<tr>
<td>GREEK</td>
<td>Greek</td>
</tr>
<tr>
<td>GRMN</td>
<td>German</td>
</tr>
<tr>
<td>GWST</td>
<td>Gender and Women's Studies</td>
</tr>
<tr>
<td>HCA</td>
<td>Health Care Administration</td>
</tr>
<tr>
<td>HDFS</td>
<td>Human Development and Family Science</td>
</tr>
<tr>
<td>HHP</td>
<td>Health and Human Performance</td>
</tr>
<tr>
<td>HIST</td>
<td>History</td>
</tr>
<tr>
<td>HONR</td>
<td>Honors College</td>
</tr>
<tr>
<td>HORT</td>
<td>Horticulture</td>
</tr>
<tr>
<td>HRAD</td>
<td>Hotel and Restaurant Administration</td>
</tr>
<tr>
<td>HRAE</td>
<td>Human Resources and Adult Education</td>
</tr>
<tr>
<td>HS</td>
<td>Human Sciences</td>
</tr>
<tr>
<td>ITOX</td>
<td>Interdisciplinary Toxicology</td>
</tr>
<tr>
<td>INTL</td>
<td>International Studies</td>
</tr>
<tr>
<td>JAPN</td>
<td>Japanese</td>
</tr>
<tr>
<td>LA</td>
<td>Landscape Architecture</td>
</tr>
<tr>
<td>LATN</td>
<td>Latin</td>
</tr>
<tr>
<td>LBSC</td>
<td>Library Science</td>
</tr>
<tr>
<td>LEIS</td>
<td>Leisure</td>
</tr>
<tr>
<td>LSB</td>
<td>Legal Studies in Business</td>
</tr>
<tr>
<td>MAE</td>
<td>Mechanical and Aerospace Engineering</td>
</tr>
<tr>
<td>MATH</td>
<td>Mathematics</td>
</tr>
<tr>
<td>MBA</td>
<td>Master of Business Administration</td>
</tr>
<tr>
<td>MC</td>
<td>Mass Communications</td>
</tr>
<tr>
<td>MSEA</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>MCAG</td>
<td>Mechanized Agriculture</td>
</tr>
<tr>
<td>MET</td>
<td>Mechanical Engineering Technology</td>
</tr>
<tr>
<td>MGMT</td>
<td>Management</td>
</tr>
<tr>
<td>MICR</td>
<td>Microbiology</td>
</tr>
<tr>
<td>MKTG</td>
<td>Marketing</td>
</tr>
<tr>
<td>MLSC</td>
<td>Military Science</td>
</tr>
<tr>
<td>MMJ</td>
<td>Multimedia Journalism</td>
</tr>
<tr>
<td>MSIS</td>
<td>Management Science and Information Systems</td>
</tr>
<tr>
<td>MUSI</td>
<td>Music</td>
</tr>
<tr>
<td>NATS</td>
<td>Natural Science</td>
</tr>
<tr>
<td>NREM</td>
<td>Natural Resource Ecology and Management</td>
</tr>
<tr>
<td>NSCI</td>
<td>Nutritional Sciences</td>
</tr>
<tr>
<td>OCED</td>
<td>Occupational Education</td>
</tr>
<tr>
<td>PHIL</td>
<td>Philosophy</td>
</tr>
<tr>
<td>PHYS</td>
<td>Physics</td>
</tr>
<tr>
<td>PLNT</td>
<td>Plant Science</td>
</tr>
<tr>
<td>PLP</td>
<td>Plant Pathology</td>
</tr>
<tr>
<td>POLS</td>
<td>Political Science</td>
</tr>
<tr>
<td>PSYC</td>
<td>Psychology</td>
</tr>
<tr>
<td>REL</td>
<td>Religious Studies</td>
</tr>
<tr>
<td>REMS</td>
<td>Research, Evaluation, Measurement, and Statistics</td>
</tr>
<tr>
<td>RES</td>
<td>Research</td>
</tr>
<tr>
<td>RMTR</td>
<td>Recreation Management and Therapeutic Recreation</td>
</tr>
<tr>
<td>RUSS</td>
<td>Russian</td>
</tr>
<tr>
<td>SC</td>
<td>Strategic Communication</td>
</tr>
<tr>
<td>SCFD</td>
<td>Social Foundations</td>
</tr>
<tr>
<td>SDEV</td>
<td>Student Development</td>
</tr>
<tr>
<td>SMED</td>
<td>Science and Math Education</td>
</tr>
<tr>
<td>SOC</td>
<td>Sociology</td>
</tr>
<tr>
<td>SOIL</td>
<td>Soil Science</td>
</tr>
<tr>
<td>SPAN</td>
<td>Spanish</td>
</tr>
<tr>
<td>SPCH</td>
<td>Speech Communication</td>
</tr>
<tr>
<td>SPED</td>
<td>Special Education</td>
</tr>
<tr>
<td>SPM</td>
<td>Sports Media</td>
</tr>
<tr>
<td>STAT</td>
<td>Statistics</td>
</tr>
<tr>
<td>TCOM</td>
<td>Telecommunications Management</td>
</tr>
<tr>
<td>TH</td>
<td>Theatre</td>
</tr>
<tr>
<td>UNIV</td>
<td>University</td>
</tr>
<tr>
<td>VBSC</td>
<td>Veterinary Biomedical Sciences</td>
</tr>
<tr>
<td>VCS</td>
<td>Veterinary Clinical Sciences</td>
</tr>
<tr>
<td>VMED</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td>ZOOL</td>
<td>Zoology</td>
</tr>
</tbody>
</table>
Accounting (ACCT)

ACCT 2103 Financial Accounting. Prerequisite(s): 24 semester credit hours, including ENGL 1113 and MATH 1483 or equivalent. Financial accounting concepts and the use of financial accounting information in decision-making.

ACCT 2203 Managerial Accounting. Prerequisite(s): 2103. Managerial accounting concepts and objectives, planning and control of sales and costs, analysis of costs and profits.

ACCT 3013 Federal Income Taxation. Prerequisite(s): 2203; by permission only; satisfactory score on a qualifying exam covering basic accounting concepts. 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 business decision-making.

ACCT 3103 Intermediate Accounting I. Prerequisite(s): 2203 with a grade of “C” or better; by permission only; satisfactory score on a qualifying exam covering basic accounting concepts. Theory and concepts underlying financial accounting and reporting.

ACCT 3113 Intermediate Accounting II. Prerequisite(s): 3103 with a grade of “C” or better. Theory and concepts underlying financial accounting and reporting. Continuation of 3103.

ACCT 3183 Agribusiness Accounting and Taxation. Prerequisite(s): 60 semester credit hours, including ENGL 1113 and MATH 1483 or equivalent. Development of the ability to read, analyze and use accounting information to improve decision-making and tax planning. (Same course as AGEC 3183)

ACCT 3203 Cost Accounting. Prerequisite(s): 2203, STAT 2023; by permission only; satisfactory score on a qualifying exam covering basic accounting concepts. Cost accumulation systems, allocating product costs, planning and controlling costs, standard costing, and profitability analysis.

ACCT 3603 Accounting Information Systems. Prerequisite(s): 2203; by permission only; satisfactory score on a qualifying exam covering basic accounting concepts. Accounting system design and installation.

ACCT 4033 Advanced Federal Income Taxation. Prerequisite(s): 3013. Federal income tax law applicable to individuals, corporations, partnerships, trusts and estates, and other specialized topics.

ACCT 4133 Advanced Accounting. Prerequisite(s): 3113 with grade of “C” or better. Accounting for business combinations and consolidations, accounting for governmental and not-for-profit entities.

ACCT 4233 Internal Auditing. Prerequisite(s): 3103 and 3603. Examination of theory and practices utilized by internal auditors in performing operational audits to assure an organization’s operational effectiveness, efficiency, and control over resources.

ACCT 4503* Auditing and Assurance Services. Prerequisite(s): 3103 and 3603. Auditing theory, procedures and practices.

ACCT 4553 Ethical Issues in Accounting. Prerequisite(s): Admission to the MSA/PPA or permission of department. 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, evaluations of 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.

ACCT 4653 Contemporary Integrated Accounting and Business Systems. Prerequisite(s): 3603. Concepts and software applications underlying the design and use of databases for financial, managerial, and tax accounting measurement, compliance disclosure, and decision-related reporting in traditional and electronic commerce settings.

ACCT 4733 International Accounting. Prerequisite(s): 2103 and 2203. Diversity in financial reporting across countries and its effect on global capital flows. Using corporate financial information across borders. Accounting in emerging markets.

ACCT 4763 International Accounting Abroad. Prerequisite(s): 2103 or consent of instructor. A four-week visit to a European country or countries. 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.

ACCT 4930 Accounting Projects. 1-9 credits, max 9. Prerequisite(s): 3113, 3203, and consent of instructor. Special topics, projects and independent study in accounting.

ACCT 5013* Tax Research. Prerequisite(s): Admission to MS in accounting. Development and administration of federal tax law with emphasis on the development of tax research skills.

ACCT 5023* Estate and Trust Taxation. Prerequisite(s): Admission to MS in accounting. Federal and Oklahoma wealth transfer tax systems, including estate, gift, and generation-skipping transfer taxation. Also, treatment of income taxation of estates and trusts and estate planning vehicles.

ACCT 5033* Natural Resource Taxation. Prerequisite(s): Admission to MS in accounting. Federal income tax laws applicable to the acquisition, operation, and disposition of natural resources and properties.

ACCT 5043* Partnership Taxation. Prerequisite(s): Admission to MS in accounting and completion of 5013. Federal income tax laws applicable to partners and partnerships.

ACCT 5053* Corporate Taxation. Prerequisite(s): Admission to MS in accounting and completion of 5013. Federal income tax law applicable to corporations and shareholders.

ACCT 5083* MBA Tax Management. Prerequisite(s): Admission to MBA program or consent of MBA director. An introduction to the basic framework of the federal income tax system with an emphasis on recognition of the tax implications of business transactions and how taxes affect managerial decision-making. An exploration of the social and economic policy ramifications of the tax system.

ACCT 5103* Seminar in Contemporary Accounting Theory I. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Origins and development of accounting theory. Critical study of issues in contemporary accounting theory.

ACCT 5113* Financial Accounting Research. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Research and presentation of solutions for complex issues in contemporary accounting practice; using analyses, SEC, FASB, AICPA, IASB, as well as other publicly available information.

ACCT 5123* Enterprise Resource Planning. Prerequisite(s): Graduate standing, ACCT 5103 and 5113. Resource planning for global business organizations. Integrated data flow and computer software for enterprise resource planning. Integration of transactional analysis, fundamental accounting practice, financial planning, and supply chain analysis forming the basis for study in this integrated approach to enterprise resource planning.

ACCT 5133* International Oil and Gas Accounting. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Financial accounting and reporting for U.S. and international oil and gas operations. Domestic and international joint interest accounting. Accounting for international concession and profit sharing agreements.

ACCT 5153* Financial Statement Analysis. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Study of the demand and supply of financial data, properties of information derived from financial statements, the role of financial information in investment decisions, and features of the decision-making environment.

ACCT 5183* MBA Financial Reporting. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Fundamentals of financial reporting, preparation and analysis of financial statements, and the role of financial accounting in decision making.

ACCT 5203* Seminar in Contemporary Accounting Theory II. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Origins and development of accounting theory. Critical study of issues in contemporary accounting theory. Continuation of 5103.

ACCT 5233* Valuation and Advanced Cost Management. Prerequisite(s): Admission to MS in accounting. Valuation of assets using a variety of interdisciplinary business methods. Advanced topics in cost management including the role of risk and its impact on valuation and cost management issues.

ACCT 5283* MBA Managerial Accounting. Prerequisite(s): 5183 and admission to MBA program or consent of MBA director. Interpretation of accounting data in planning, controlling and decision-making.

ACCT 5503* Auditing and Assurance Services. Prerequisite(s): Admission to professional program in accounting (PPA)/MS in accounting program. Auditing theories, procedures and practices.

ACCT 5513* Advanced Auditing and Assurance Services. Prerequisite(s): 5503 or equivalent. Introduction to fraud examination and legal issues involved in investigative process. Advanced topics in statutory auditing, operational auditing and investigative services.

ACCT 5543* Fraud Examination. Prerequisite(s): Permission of SSB Graduate Programs office. Schemes used in the commission of white-collar fraud, as well as causes, symptoms and prevention methods related to these crimes.

ACCT 5553* Forensic Accounting Tools. Prerequisite(s): Permission of SSB Graduate Programs office. Provides in-depth study and practice with tools that are most critical in conducting proactive fraud detection and fraud investigations.

ACCT 5603* Accounting-Based Information Systems. Prerequisite(s): Permission of SSB Graduate Programs office. Emphasis on underlying the design and use of an effective accounting information system.

ACCT 5613* Business Systems Control and Risk Analysis. Prerequisite(s): Permission of SSB Graduate Programs office. Controlling and auditing business information systems, including management and applications controls, electronic commerce and Internet-related controls and evaluation of system.

ACCT 5753* Seminar in International Accounting. Prerequisite(s): 3113 with a grade of “C” or better and admission to the MS in accounting program. Not available for students who have credit in 4733. Accounting issues faced by multinational enterprises and internationally listed companies, including diversity in financial reporting and harmonization.

ACCT 5783* MBA International Accounting. Prerequisite(s): 5183 and admission to MBA program or consent of MBA director. Diversity in financial reporting across countries and its effect on global capital flows. Corporate financial information across borders. Accounting in emerging markets.

ACCT 5830* Graduate Internship in Accounting. 1-3 credits, max 3. Prerequisite(s): Admission to MS/PPA in accounting; consent of graduate
Aerospace Studies - Air Force (AERO)

AERO 1111 Foundations of the U.S. Air Force I. Lab 1. Doctrine, mission and organization of the United States Air Force through a study of the total force structure, strategic offensive and defensive forces, general purpose forces and aerospace support forces.


AERO 2111 Evolution of U.S. Air Force and Space Power I. Lab 1. Growth and development of aerospace power through history beginning with first manned flights and continuing through World War II.

AERO 2211 Air Power History II. Lab 1. Development and growth of aerospace power from the period following World War II through the Vietnam conflict; concepts of peaceful deployment of U.S. air power.

AERO 3103 Air Force Leadership Studies I. Lab 2. The study of the fundamental principles of leadership, management, and communication skills required of an Air Force junior officer. Basic managerial processes, management of forces in changing environments, organizational power, politics, and managerial strategy and tactics.

AERO 3203 Air Force Leadership Studies II. Lab 1. The application of leadership, management, and communication skills required of an Air Force junior officer. The individual as a leader in the Air Force environment, individual, motivational, and behavioral processes, group dynamics, leader and management ethics, counseling and evaluating are discussed.

AERO 3504 Field Training Encampment Program. Prerequisite(s): Consent of professor of aerospace studies. Practical training on an Air Force base working in their respective technical specialty under supervision of experienced officer. Leadership and management principles applied to day-to-day experiences.

AERO 4402 Summer Professional Development Training Program. Prerequisite(s): Consent of professor of aerospace studies. Students spend from two to three weeks on an Air Force base working in their respective technical specialty under supervision of experienced officer. Leadership and management principles applied to day-to-day experiences.


Agricultural Communications (AGCM)

AGCM 2113 Communications in Agriculture. Lab 2. Prerequisite(s): ENGL 1113 and major in AGCM or consent of instructor. Fundamentals of agricultural news writing and other communication methods. Careers in and the role of the media in agriculture and related fields.

AGCM 3100 Special Topics in Agricultural Communications. Prerequisite(s): consent of instructor. Investigation of specialized and/or advanced topics and issues related to agricultural communications.

AGCM 3103 Written Communications in Agricultural Sciences and Natural Resources. Prerequisite(s): Junior standing in the College of Agricultural Sciences and Natural Resources or consent of the instructor. Understanding and application of writing principles and communications theory as related to public issues in agriculture and the environment. Practice in writing for a variety of media and preparation of other communications as part of a communications campaign strategy.

AGCM 3113 Writing and Editing for Agricultural Publications. Lab 2. Prerequisite(s): 2113 with a grade of “C” or better; major in agricultural communications; score of 3 or better on writing assessment; or consent of instructor. Interviewing, reporting, writing, and editing for agricultural publications.

AGCM 3123 New Media in Agricultural Communications. Lab 2. Prerequisite(s): 3113 and 3233. Exploration and application of emerging media technologies for agricultural communicators as used in promoting, marketing and communicating about agriculture, food, natural resources and the environment.

AGCM 3203 Oral Communications in Agricultural Sciences and Natural Resources Lab 2. Prerequisite(s): ENGL 1213 or consent of instructor. 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.

AGCM 3213 Layout and Design for Agricultural Publications. Lab 4. Prerequisite(s): 2113 or JB 2003; major in agricultural communications or consent of instructor. Fundamentals of layout and design as applied to agricultural publications. Practical application of design principles, typography, desktop-publishing software and printing practices. Opportunity for service-learning experiences.

AGCM 3223 Web Design for Agricultural Organizations. Lab 4. Prerequisite(s): 2113 or JB 2003; major in agricultural communications or consent of instructor. Development of World Wide Web sites for agricultural organizations. Practical application of theory and skills related to graphic design, computer software, writing, editing and project management. Opportunities for service-learning experiences.

AGCM 3233 Basic Photography and Photo Editing for Agriculture. Lab 1. Prerequisite(s): 2113 or JB 2003; major in agricultural communications or consent of instructor. Beginning course focusing on photographic equipment, related software and photo composition in an agricultural setting.

AGCM 4113* Features Writing and Editing for Agricultural Publications. Prerequisite(s): 3113 with a grade of “C” or better; major in agricultural communications or consent of instructor. Brainstorming, researching, interviewing, developing, writing and editing feature stories for agricultural publications.

AGCM 4203* Professional Development in Agricultural Communications. Prerequisite(s): 2113 or JB 2003; major in agricultural communications or consent of instructor. Professional preparation and development for careers in agricultural communications. Professional communications, resume and portfolio development, presentations, networking and job interviews. Introduction to event planning.

AGCM 4233 Agricultural Photography Tour. Lab 2. 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.

AGCM 4300 Internships in Agricultural Communications. 1-6 credits, max 12. Prerequisite(s): Consent of internship coordinator and adviser. Supervised work experience with approved employers in agricultural communications. Presentation required following the internship experience.

AGCM 4403 Planning Camps for Agriculture and Natural Resources. Lab 4. Prerequisite(s): 3113 or JB 3263; AGCM 3213; major in agricultural communications or consent of instructor. Communications campaign development for agriculture and natural resources activities and issues, including development of materials, budgets and contracts.

AGCM 4413* Agricultural Communications Capstone. Lab 4. Prerequisite(s): 3213, 3233; JB 3263 or AGCM 4113; senior or graduate standing and consent of instructor. The development of agricultural communications projects with focus in either broadcast or print media. Practical application of writing, editing and design skills as well as software applications.

AGCM 4990 Problems in Agricultural Communications. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Small group and individual study and
research in problems relating to communications within the agricultural sector and from the agricultural sector to other constituencies.

AGCM 5000* Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Graduate standing. Independent research and thesis under the direction and supervision of a major professor.

AGCM 5100* Special Topics in Agricultural Communications. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Investigation of specialized and/or advanced topics in issues related to agricultural communications.

AGCM 5101* Orientation to Graduate Programs in Agricultural Education, Communications and Leadership. Prerequisite(s): Graduate standing. Orientation to graduate programs in agricultural education and communication including degree expectation, understanding scholarship, orientation to the discipline, introduction to research agendas, and identification of support systems. (Same course as AGED 5101)

AGCM 5103* History and Philosophical Foundations of Agricultural Communications. Prerequisite(s): Graduate standing. Discussion of the history, philosophical foundations and current issues regarding agricultural communications and the land-grant system.

AGCM 5132* Writing for Scholarly Publications in Agricultural Sciences and Natural Resources. Development of scientific writing skills for agricultural sciences and natural resources disciplines, including research proposals, theses, dissertations, conference papers, and journal articles.

AGCM 5203* Theory and Practice in Agricultural Communications. Prerequisite(s): Graduate standing. The study of major communication theories and theorists in the context of agricultural communications.

AGCM 5213* Advanced Concepts in Agricultural Publishing. Prerequisite(s): Graduate standing. Analysis, redesign and creation of agricultural publications. Evaluation of audience, production, advertising and editorial content.

AGCM 5233* Agricultural Photography Tour Lab 2. 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 4433.

AGCM 5303* Communicating Ethical Issues in Agriculture. Prerequisite(s): Graduate standing. An introduction to communicating ethical theories in the context of agriculture. Ethical theory and current research are used to critique contemporary issues in agriculture.

AGCM 5403* Public Relations Campaigns in Agricultural Sciences and Natural Resources Lab 2. Prerequisite(s): AGCM 5213*. 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.

AGCM 5503* Disaster Management and Communication in Agricultural Sciences and Natural Resources. Development of disaster management and communication skills and knowledge, with special application to agricultural sciences and natural resources disaster and terrorism situations.

AGCM 5900* Special Topics in Agricultural Communications. Prerequisite(s): Consent of supervising professor. Individual and small group study or research in agricultural communications topics and issues.

Agricultural Economics (AGEC)

AGEC 1113 (S) Introduction to Agricultural Economics. Economic theory of production, market, and consumption of agricultural products and natural resources. The role and structure of agricultural sciences and natural resources within the American and global systems. Policies to achieve efficiency and welfare goals in agriculture. No general education credit for students also taking ECON 1113 or ECON 2103.

AGEC 2303 (D) Food Marketing to a Diverse Population. 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.

AGEC 2313 (I) Case Studies in Agricultural Trade and Development. Prerequisite(s): A course in economics or marketing. Real world issues in international trade and development of agricultural and food products. Development of theories of issues facing policymakers, producers, consumers, and other groups in examining the costs and benefits of various trade and development programs.

AGEC 3010 Internship in Agricultural Economics. 1-3 credits, max 3. Prerequisite(s): Approval of internship committee and adviser. Supervised work experience related to a broad public and private 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.

AGEC 3101 Professional Career Development. Prerequisite(s): Junior standing and agricultural economics or agribusiness major status. 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.

AGEC 3183 Agribusiness Accounting and Taxation. Prerequisite(s): 60 semester credit hours, including ENGL 1113 and MATH 1513 or equivalent. Development of the ability to read, analyze, and use accounting information to improve decision-making and tax planning. (Same course as ACCT 3183)

AGEC 3213 Quantitative Methods in Agricultural Economics. Lab 2. Prerequisite(s): 1113 or ECON 2103, and STAT 2023 or equivalent. Indices, graphical methods, budgeting, interest calculations, compounding and discounting basic financial statistics, regression, optimization and computer applications.

AGEC 3323 Agricultural Product Marketing and Sales. Prerequisite(s): 1113, ENGL 1113, SPCH 2713. 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 for all students.

AGEC 3333* Agricultural Marketing and Price Analysis. Prerequisite(s): 1113 or ECON 2103. Analysis of the marketing and price behavior of agricultural and agribusiness industries. No credit for students with prior credit in 4423.

AGEC 3423 Farm and Agribusiness Management. Prerequisite(s): 1113 and ACCT 2103 or ACCT 3183 or AGE 3183. 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.

AGEC 3463 Agricultural Cooperatives. Prerequisite(s): 1113 or ECON 2103. An introduction to the planning, organizing, marketing, 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.

AGEC 3503 Natural Resource Economics. Prerequisite(s): 1113 or ECON 2103. 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, political power and eminent domain applied to agriculture.

AGEC 3603 Agricultural Finance. Prerequisite(s): 2313 and 4423. 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 lend funds.

AGEC 3703 Issues in Agricultural Policy. Prerequisite(s): 1113. Emerging issues related to agricultural policy in the United States.

AGEC 3713 Agricultural Law. Prerequisite(s): 1113. 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 organizations, estate planning, bankruptcy and ACCT 2103 or ACCT 3183. Fundamentals of financial law, including 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, political power and eminent domain applied to agriculture.

AGEC 3990 Special Problems in Agricultural Economics. 1-3 credits, max 3. Directed study of selected agricultural economics topics.

AGEC 4101 Agricultural Economics Seminar. Prerequisite(s): Senior standing and agricultural economics or agribusiness major status. Contemporary problems in agricultural economics.

AGEC 4213* Advanced Quantitative Methods in Agricultural Economics. Prerequisite(s): 3213, 3333, MATH 2103, and ECON 3023 or 3113. Quantitative analysis of agricultural supply and demand in situations involving risk and uncertainty within the institutional setting of agricultural markets. Use of spreadsheet to perform regression analysis and simulation of potential market outcomes. Analysis of specific agricultural market cases with written and oral presentation of the results.

AGEC 4333* Commodity Futures Markets. Prerequisite(s): 3213 and 3333. The economics of commodity futures markets. The vocabulary of futures markets and the mechanics of trading and hedging. Basic analysis of marketing strategies. Fundamental analysis and statistical analysis of data. Technical analysis, behavioral finance, efficient market hypothesis, and basics of option pricing.

AGEC 4343 (I) International Agricultural Markets and Trade. Prerequisite(s): 1113 or ECON 2103. Contemporary international agriculture and trade issues 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.

AGEC 4403* Advanced Farm and Ranch Management. Prerequisite(s): 3213, 3333, 3603, MATH 2103, and ECON 3023 or 3113. 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.

AGEC 4423* Advanced Agribusiness Management. Prerequisite(s): 3213, 3333, 3603, MATH 2103, and ECON 3023 or 3113. 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.

AGEC 4503* Environmental Economics and Resource Development. Prerequisite(s): 3503 or ECON 3113 or consent of instructor. 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.

AGEC 4513* Farm Appraisal. Lab 2. Prerequisite(s): 3423. Estimating the market value of agricultural real estate using the three approaches to value - sales comparison, cost, and income approaches. Analysis of sales of sales to determine the different characteristics of the farm.

AGEC 4703* American Agricultural Policy. Prerequisite(s): 3213, 3333, MATH 2103, and ECON 3023 or 3113. Economic characteristics and problems of agriculture; evolution and significance of programs and policies.

AGEC 4723* Rural Economics Development. Prerequisite(s): 1113 or ECON 2103. 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.

AGEC 4803 (I) International Agricultural Economics Tour. Prerequisite(s): Consent of instructor. A two-three week international travel component. An integrated approach to the cultural, agricultural, historical, technical, political, economic, and religious backgrounds of the region. Comparison of the agricultural business environment of the region to that of the U.S.

AGEC 4990* Problems in Agricultural Economics. 1-6 credits, max 6. Open to students with consent of instructor only. Research on special problems in agricultural economics.

AGEC 5000* Master’s Thesis/Report. 1-6 credits, max 6. For students working on an MS degree in agricultural economics. Independent research and thesis under the direction and supervision of a major professor.

AGEC 5010* Professional Experience in Agricultural Economics or Agribusiness. 1-6 credits, max 6. Prerequisite(s): Approval of internship committee and advisor. Supervised professional experience in agricultural economics or agribusiness. Designed for Master of Agriculture program. Graded on pass-fail basis.

AGEC 5101* Research Methodology. Prerequisite(s): Selection of a thesis advisor and a thesis topic. Using the scientific method to solve problems related to agriculture. Preparation of a thesis proposal required.

AGEC 5103* Mathematical Economics. Prerequisite(s): Differential calculus and ECON 1113 or equivalent. Basic tools necessary for formulation and application of economic theory and economic models.

AGEC 5113* Applications of Mathematical Programming. The application of concepts and principles of existing linear and nonlinear programming techniques to agricultural problems.

AGEC 5203* Advanced Agricultural Prices. Prerequisite(s): 5103, STAT 4043. Demand and prices structures, price discovery, time series and agricultural price research methods.

AGEC 5213* Econometric Methods. Prerequisite(s): 5033 and ECON 4213 or STAT 4043. Application of econometric techniques to agricultural economic problems, theory and estimation of structural economic parameters.

AGEC 5233* Primary Data Analysis in Economic Research. Prerequisite(s): 5213 or ECON 5213 concurrent enrollment. Development and analysis of surveys and experiments designed to collect primary data for economic research. Basics of survey and experimental design, survey delivery, and sampling. Methods, economics, and econometrics of valuation methods including contingent valuation, farm level research, factor analysis, cluster analysis, and structural equations modeling, including limited dependent variable models such as the logit, probit, ordered probit, multinomial logit, tobit and interval censored regression.

AGEC 5311* Agricultural Marketing: Concepts and Tools. Role of marketing and prices in the food system. Price variation across space, time, and form.

AGEC 5321* Agricultural Marketing and Economic Development. Prerequisite(s): 5311. Role of marketing in economic development, focusing on international economics; role of institutions in a market economy.

AGEC 5331* Agricultural Marketing: Advanced Concepts. Prerequisite(s): 5311. 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.

AGEC 5343* International Agricultural Markets and Trade. Contemporary international agricultural trade theory and applications. Broaden students’ understandings of contemporary agricultural and environmental 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.

AGEC 5353* Advanced Case Studies in Agricultural Marketing and International Development. Prerequisite(s): Consent of instructor. 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.

AGEC 5403* Production Economics. Prerequisite(s): 5103. 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.

AGEC 5423* Agribusiness Management. Prerequisite(s): Consent of instructor. Application of quantitative analysis to the evaluation of business plans associated with agribusiness firms. Integration 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.

AGEC 5463* Advanced Agricultural Cooperatives. Prerequisite(s): 3463 or consent of instructor. 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.


AGEC 5603* Advanced Agricultural Finance. Prerequisite(s): 3603 or FIN 3113, ECON 3023 or 3113 and ECON 4213 or STAT 4043. Financial management concepts applied to agricultural firms. Financial models that incorporate uncertainty and risk via stochastic simulation. Risk/return tradeoff for capital and portfolio management.

AGEC 5703* Economics of Agriculture and Food Policy. Prerequisite(s): 4703 and 5103. Application of welfare criteria and economic analysis to agricultural, food, and rural development problems and policies.

AGEC 5713* Rural Regional Analysis. Prerequisite(s): 5103. 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.

AGEC 5723* Planning and Policy for Development. Prerequisite(s): Master’s-level microeconomics, macroeconomics, and regression analysis. 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 under econometric software.

AGEC 5733* International Agricultural Policy and Development. 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.


AGEC 5990* Advanced Studies. 1-6 credits, max 6. Open to graduate students with consent of instructor only. Investigation in designated areas of agricultural economics.

AGEC 6000* Doctoral Dissertation. 1-15 credits, max 24. 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.
**AGEC 6102** Teaching Practicum in Agricultural Economics. Lab 4. Prerequisite(s): Two semesters of graduate study in agricultural economics. Philosophies of resident and nonresident teaching, general tasks performed, review, evaluation and lecture organization, preparation and presentation.

**AGEC 6103** Advanced Applications of Mathematical Programming. Prerequisite(s): 5103, 5113. General presentation of nonlinear optimization theory and methodology in applications of nonlinear programming. Use of GAMS/MINOS optimization software package.

**AGEC 6213** Advanced Econometrics. Prerequisite(s): 5213 or ECON 5243; STAT 4203 and 4213 recommended. Using advanced econometric techniques in applied research. Emphasis on nonlinear hypothesis tests; Monte Carlo hypothesis testing; stochastic simulation; misspecification testing. Extensive use of SAS statistical software package.

**AGEC 6300** Agricultural Marketing Seminar. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Current developments in theory, techniques for evaluating marketing behavior, market legislation and market development.

**AGEC 6303** Advanced Agricultural Marketing. Prerequisite(s): 5303. Marketing theory, market structure and performance, governmental regulation and policy and bargaining in agricultural markets.

**AGEC 6400** Seminar in Farm Management and Production Economics. 1-6 credits, max 6. Prerequisite(s): 5403 or consent of instructor. Scientific research methods as used to determine resource efficiency.

**AGEC 6403** Advanced Production Economics. Prerequisite(s): 5403. 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.

**AGEC 6700** Agricultural Policy and Rural Resource Development Seminar. 1-2 credits, max 2. Frontier issues in agricultural policy, natural resources and rural development.

### Agricultural Education (AGED)

**AGED 2011** Topics and Issues in Agricultural Education. 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 instructional manner by active or interval efficiency.

**AGED 3101 Laboratory and Clinical Experiences in Agricultural Education.** Pre-professional clinical experiences in agricultural education teaching and related careers. Requirement for admission to professional education, student teaching, and internships.

**AGED 3103 Foundations and Philosophies of Teaching Agricultural Education.** Lab 2. Prerequisite(s): 21 semester credit hours of agriculture with a 2.50 GPA. Roles and responsibilities of the agricultural education teacher; types of program offerings of the teaching-learning process; place of agricultural education in relation to other educational programs in school systems.

**AGED 3203** Planning the Community Program in Agricultural Education. Lab 2. Prerequisite(s): 3103. 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 implementing the instructional program, identification and completion of records and reports required of a teacher of agricultural education in Oklahoma.

**AGED 4103** Methods and Skills of Teaching and Management in Agricultural Education. Lab 2. Prerequisite(s): 3101 and 3203 and EPSY 3213 (or 3413) and SPED 3202 and concurrent enrollment in 4113 and 4200 and full admission to the University Professional Education program. Facets of the teaching-learning process including teaching methods, basic teaching skills, proper classroom management techniques, and motivational and technical techniques and ideas. Preparation for student teaching which is to be completed during the same semester.

**AGED 4113 Laboratory Instruction in Agricultural Education.** Lab 2. Prerequisite(s): 3101 and 3203 and EPSY 3213 (or 3413) and SPED 3202 and concurrent enrollment in 4103 and 4200 and full admission to the University Professional Education program. Methods of teaching agricultural education in a laboratory setting. A study of laboratory safety instruction, methods of teaching, and application of technical agricultural skills to the secondary program.

**AGED 4200 Student Teaching in Agricultural Education.** 1-9 credits, max 9. Prerequisite(s): 3101 and 3203 and EPSY 3213 (or 3413) and SPED 3202 and concurrent enrollment in 4103 and 4113 and full admission to the University Professional Education program. Full-time directed experience in an approved agricultural education department. Applications of methods and skills in agricultural education as related to developing, 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.

**AGED 4713 (I)** International Programs in Agricultural Education and Extension. 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.

**AGED 4803 (I)** International Study Tour in Agricultural Education. Prerequisite(s): Consent of instructor. An experiential learning course featuring an international travel component. Provides an integrated approach to studying the agriculture, education, natural resources, culture, history, government, economy, and religion of a particular region. Special emphasis placed upon formal and informal educational programs focusing on agriculture and natural resources.

**AGED 4990** Seminar and Problems in Agricultural Education. 1-3 credits, max 6. Small group and/or individual study and research in problems relating to programs of occupational education in agriculture.

**AGED 5000** Research and Seminar. 1-6 credits, max 6. Independent research and thesis under the direction and supervision of a major professor.

**AGED 5101** Orientation to Graduate Programs in Agricultural Education, Communications and Leadership. Prerequisite(s): Graduate standing. 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. (Same course as AGCM 5101).

**AGED 5102** Creative Component in Agricultural Education. Prerequisite(s): 5983 or equivalent; consent of instructor. Independent research or project management under the direction and supervision of a major adviser.

**AGED 5123** Adult Programs in Agricultural and Extension Education. 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.

**AGED 5203** Grant Seeking. Prerequisite(s): Graduate standing or consent of instructor. 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.

**AGED 5500** Directing Programs of Supervised Experience. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Determining the supervised training needs and opportunities of individual students. Planning for supervision and implementation of educational programs and 4-H club programs. Analysis of training opportunities in production agriculture, agricultural businesses and individual career development.

**AGED 5623** Volunteer Management in Agricultural and Extension Education. Prerequisite(s): Graduate standing. 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.

**AGED 5703** Cultural Competency for Working in Agricultural and Extension Education. Prerequisite(s): Graduate standing. Examination of strategies to increase intercultural intelligence, and cultural competence. Focus on agricultural education and extension educators’ roles and responsibilities related to the management of volunteers with an emphasis on cross-cultural, cultural differences, cultural transitions, and intercultural theories for agricultural and extension educators.

**AGED 5803** International Study Tour in Agricultural Education for Graduate Students. Prerequisite(s): Consent of instructor. Experiential learning course featuring an international travel component. Provides an integrated approach to studying the agriculture, education, natural resources, culture, history, government, economy, and religion of a particular region. Special emphasis placed upon formal and informal educational programs focusing on agriculture and natural resources.

**AGED 5813** College Teaching of Agriculture and Natural Resources. Prerequisite(s): Consent of instructor. 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.

**AGED 5823** Advanced Methods of Teaching Agriculture. 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, techniques, and tools.

**AGED 5863** Methods of Technological Change. 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.

**AGED 5900** Graduate Internship in Agriculture. 1-6 credits, max 6. Prerequisite(s): Admission to Master of Agricultural Education program, consent of graduate coordinator. Supervised internship in agricultural education, government agencies, industry, Cooperative Extension, or not-for-profit organizations.

**AGED 5983** Quantitative Research Methods in Agricultural Education. Prerequisite(s): Graduate standing. A comprehensive examination of quantitative research methods including identifying a problem, data collection, statistical analysis, ensuring validity and reliability, and reporting.
AGLE 5900 Problems in Agricultural and Extension Education.  1-3 credits, max 8. Securing and analyzing data related to special problems or investigation in designated areas of agricultural education.

AGLE 5993* Data Analysis and Interpretation in Agricultural Education. Prerequisite(s): Graduate standing; 5983 or equivalent; REMS 5953 or equivalent. A course designed for Agricultural Education students who have gathered or are gathering data for a research study, to analyze and interpret the data. Both quantitative and qualitative data analysis techniques will be studied. The discovery method will allow the students and instructor to work together to identify research questions and interpret the data sets.

AGLE 6000* Research in Agricultural Education. 1-16 credits, max 16. Prerequisite(s): Approval of major adviser. Open to students pursuing graduate study beyond the requirements for a master’s degree. Independent research and thesis under the direction and supervision of a major professor.

AGLE 6100* Graduate Seminar in Agricultural Education. 1-3 credits, max 6. Discussion of issues, problems and trends in agricultural education.

AGLE 6101* History and Philosophical Foundations of Agricultural and Extension Education. Prerequisite(s): Graduate standing. History and philosophical foundations of agricultural and extension education. Philosophy and its role in life, rise of education in America, philosophic foundations of education in America, legislation having an impact on agricultural and extension education, education in agriculture and current issues in agricultural extension education.

AGLE 6223* Program Evaluation in Agriculture and Extension. Prerequisite(s): Graduate standing. Program evaluation theory and methodology (quantitative and qualitative) presented through a service learning framework. Problem-based approach having students submit a proposal that addresses an evaluation need presented by a community-based program.

AGLE 6983* Qualitative Research Methods in Agricultural Education. Prerequisite(s): Graduate standing; AGLE 5983 or other graduate level social science research methods course. A comprehensive examination of qualitative research methods including identifying a problem, data collection, interpretative analysis, ensuring trustworthiness, theory construction and reporting.

Agricultural Leadership (AGLE)

AGLE 1511 Introduction to Leadership in Agricultural Sciences and Natural Resources. Introduction to the concept of leadership as a field of study. Emphasis placed on the application of acquired knowledge to practical problems.

AGLE 2303 Personal Leadership Development in Agricultural Sciences and Natural Resources. How leaders identify key attributes of leadership and link them to their own unique vision, values, and personal strengths.

AGLE 2403 (D) Agricultural Leadership in a Multicultural Society. 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.

AGLE 3101 Introduction to Agricultural Leadership. Prerequisite(s): Major in AGLE or consent of instructor. 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.

AGLE 3303 Agricultural Leadership: Theory and Practice. A study of the concepts and theories of leadership with emphasis on the development of leadership abilities in the individual for different group situations.

AGLE 3333 Contemporary Issues in Leadership. Prerequisite(s): 2303, 3303. Explore current issues in the study of leadership. Themes based on current leadership research and writings that reveal new understandings of the leader’s role as a servant, facilitator and collaborator.

AGLE 3403 Facilitating Social and Technological Change in Agriculture. Examination of processes by which professional agriculturalists influence the introduction, adoption, and diffusion of technological change.

AGLE 3503 Introduction to Cooperative Extension. 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.


AGLE 4101* Seminar in Leadership Education. Prerequisite(s): 2303, 3303. In depth exploration of leadership topics related to agricultural sciences and natural resources.

AGLE 4203 Professional Development in Agriculture. Prerequisite(s): 3101; junior standing. 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.

AGLE 4300 Agricultural Leadership Internship. 3-6 credits, max 6. Prerequisite(s): 3101, 4203 and consent of instructor. Supervised full-time internships in approved agribusinesses, governmental agencies or county extension offices. Requires written reports and a final presentation.

AGLE 4303* Facilitating Leadership Education Program. Prerequisite(s): 2303, 3303. 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.

AGLE 4803 International Agricultural Leadership Tour. 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.

AGLE 4990 Problems in Agricultural Leadership. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Small group and/or individual study and research in problems related to agricultural leadership.

AGLE 5102* Creative Component in Agricultural Leadership and Extension Education. Prerequisite(s): Consent of instructor. 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.Agr.) with an option in Agricultural Leadership.

AGLE 5303* Foundations of Leadership Theory. Study of leadership theory including definitions of leadership and a history of modern leadership theories and current trends in leadership practice and research. Models of leadership including contingency models, situational leadership and transformational leadership.

AGLE 5353* Leadership in Agriculture. Prerequisite(s): 5303 or consent of instructor. 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.

AGLE 5900* Problems in Agricultural Leadership and Extension Education. Prerequisite(s): Consent of instructor. 1-3 credits, max. 6. Investigation in designated areas of agricultural leadership and/or extension education.

AGLE 6203* Extension Program Development. 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.

Agriculture (AG)

AG 1011 Orientation. Required of all freshmen in the College of Agricultural Sciences and Natural Resources. Methods of study, advisement system, organization of curriculum and discussion of requirements and career opportunities in various fields of agriculture.

AG 1111 Career Exploration in Agricultural Sciences and Natural Resources. Application of the career planning cycle and detailed exploration of career opportunities in the agricultural industry and natural resources field.

AG 3010 Internships in Agriculture. 1-3 credits, max 12. Prerequisite(s): Junior standing or consent of instructor. Supervised internships with business, industry or governmental agencies, including cooperating veterinarians. Graded on pass-fail basis.

AG 3080 (I) International Experience. 1-18 credits, max 36. Prerequisite(s): Consent of the associate dean of the college. Participation in a formal or informal educational experience outside of the USA.

AG 3090 (I) Study Abroad. 1-18 credits, max 36. Prerequisite(s): Consent of the Study Abroad office and associate dean of the college. Participation in an OSU reciprocal exchange program.

AG 3111 Career Planning and Skill Development. 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.

AG 3733 (H) Food and Culture. Interdisciplinary examination of the history and culture of food production and consumption in the U.S. with an emphasis on how U.S. food ways relate to those of other countries. Examines topics such as: food and the formation of social bonds, food and identity, the cultural meaning of foodways, 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)

AG 3803 (I) International Study Tour in Agricultural Sciences and Natural Resources. Prerequisite(s): Consent of instructor. A two-three week international travel component. An integrated approach to the study of
agriculture, natural resources, culture, history, and technological advances of a region.

AG 4010 Honors Seminar. 1-6 credits, max 6. Role of agriculture in society and adjustments to change in the economy.

AG 4990 Special Problems in International Agriculture and Natural Resources. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Individual and/or small group study or research on specialized problems or issues in international agriculture.

American Indian Studies (AMIS)

AMIS 2013 (D) Introduction to American Indian Studies. 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 by employing a broad interdisciplinary approach. A range of topics are covered, including Native history, sociology, art, culture, literature, geography, law, and entrepreneurship.

AMIS 4013 (D) American Indian Sovereignty. Critically analyzes historical and contemporary experiences of American Indians in society. Examines the importance of tribal sovereignty for the sociopolitical, 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.

American Sign Language (ASL)

ASL 1115 American Sign Language I. Learners will use finger spelling, signing, eye gazing, classifiers, mime, and facial expressions presented in context and through meaningful and experimental activities.

ASL 1225 American Sign Language II. Prerequisite(s): 1115 with grade of "C" or better or permission from instructor. Continuation of 1115.

ASL 2113 American Sign Language III. Prerequisite(s): 1225 with grade of "C" or better or permission from instructor. Intermediate level study of American Sign Language.

ASL 2233 American Sign Language IV. Prerequisite(s): 2113 with grade of "C" or better or permission from instructor. Continuation of 2113.

American Studies (AMST)

AMST 2103 (D,H) Introduction to American Studies. Interdisciplinary study of American civilization through case studies of four different time periods in order to understand the multiple roles of culture in American life.


AMST 3253 (H) Globalization and American Culture. 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.

AMST 3333 (S) Crime, Law and American Culture. 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.

AMST 3423 (H) American Popular Culture. Emergence and development of American Popular culture forms, rituals, and consumerism. Parades and festivals; circuses; minstrelsy; motion pictures; popular music; sports; comic books; the Internet and cyberspace. Specific attention to issues of race, class and gender.

AMST 3473 (D) Race, Gender, and Ethnicity in American Film. A survey of race, gender, and ethnicity as they have been represented in American films. Same course as ENGL 3473.

AMST 3503 (DH) Television and American Society. 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 ENGL 3503.

AMST 3513 (H) Film and American Society. Examination of U.S. film in its social, political, economic, and cultural contexts. Topics may include the history of U.S. 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 U.S. film.

AMST 3550 The Arts and American Society. 3 credits, max 6. 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.

AMST 3653 (D,H) The Body in American Culture. The body and its impact on American culture examined through a survey of diverse cultural productions and social practices. Examines the intersections of ideas of embodiment with discourses of race, class, gender, sexuality, disability, and nationalism.

AMST 3673 (D,H) History of American Art. Visual arts in America from the Colonial period to present. Major styles, ideas and uses of materials in architecture, painting, sculpture and design. (Same course as ART 3673).

AMST 3683 Culture in the Making. Applied cultural analysis. Practical instruction in the use of cultural tools and technologies to tell American stories. Students will create hands-on projects in public culture using the artistic and historical resources available in the community.

AMST 3723 (D,H) Cultural History of American Sports. Examines the role of sports in American culture 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.

AMST 3733 (H) Food and Culture. This course offers an interdisciplinary examination of the history and culture of food production and consumption in the U.S. with an emphasis on how U.S. 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 equity in food production and consumption, and how food cultures have developed over time and in relation to other societies. (Same course as AG 3733)

AMST 3743 (D,H) Harlem Renaissance. This course will examine the Black cultural movement of the 1920s and 1930s. Evolving in Harlem, New York, it affected the United States, Europe, the Caribbean, and Africa. This course will examine the impact of this on the arts, class, culture, gender, pressure, literature, music, sports, and racial and social equality in the United States. Weekly reading assignments, primary documents, and interdisciplinary material will be used to understand both the cultural and historical significance of this period.

AMST 3803 (H) War in American Culture. 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.

AMST 3813 (D,H) Readings in the American Experience. Life in the United States from the colonial era 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)

AMST 3823 (D,H) U.S. As Business Culture. Examines American business in relation to political, social and cultural phenomena, emphasizing the implications of business for race, class, and gender. 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.

AMST 3950 Special Topics in American Studies. 3 credits, max 12. Particular topics (popular culture, regionalism, myth, subcultures, race, ethnicity) to illustrate the use of interdisciplinary methods in American studies.

AMST 4553 (D) Gender in America. Cultural, societal and political reflections of American men and women from the colonial era to the present. Examination of women's movements as their opponents. Exploration of changing notions of masculinity and femininity. (Same course as HIST 4553)

AMST 4593 (H) America in International Perspective. Prerequisite(s): HIST 1103 or lower-division survey course in U.S. History, any period. 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)

AMST 4633 (H) The Frontier and American Visual Culture. The frontier and its impact on American culture examined through a survey of paintings, sculpture, photography, film, television, and other forms of popular imagery. The frontier forms a zone of cultural interaction that is seldom tied to a single culture. (Same course as ART 4633)


AMST 4973 Senior Seminar in American Studies. Prerequisite(s): 3223. Writing of senior thesis based on original research and its analysis and evaluation or completion of independent project based on practical community experience.

AMST 4990 Internship. 1-3 credits, max 6. An internship opportunity which combines independent study and practical fieldwork experience focusing on a particular problem or topic related to American culture and experience. (Examples: Internship in Archival Fieldwork, Material Culture Fieldwork, Museum Management, Sound Recordings and Native American Heritage Site).
Animal Science (ANSI)

ANSI 1111 Animal and Food Science Experience. Student development through connections among the student’s major curriculum, career goals specific to animal or food science, and eventual careers and career development through resume building and networking.

ANSI 1124 Introduction to the Animal Sciences. Lab 2. Species adaptability, product standards and requirements, areas and types of production, processing and distribution of products, includes meat animals, dairy and poultry.

ANSI 1223 Exploring the Science of Animal Agriculture. Lab 2. An introductory course describing the principles, methods, applications and value of biological research with farm animals. Course also offered for honors credit.

ANSI 2112 Live Animal Evaluation. Lab 4. Prerequisite(s): 1124. Using tools for selection including performance records, pedigree information and visual appraisal, in the evaluation of cattle, swine, sheep, horses and poultry.


ANSI 2253 Meat Animal and Carcass Evaluation. Lab 2. Prerequisite(s): 1124. Evaluation of carcases and wholesale cuts of beef, pork, and lamb. Factors influencing grades, yields and values in cattle, swine and sheep. (Same course as FDSC 2253)

ANSI 3212 Advanced Dairy Cattle Evaluation. Lab 4. Advanced evaluation of type traits as they relate to longevity and profitability in the dairy cow.


ANSI 3322 Advanced Meat Evaluation. Lab 4. Prerequisite(s): 2253. Advanced evaluation of carcases and wholesale cuts of beef, pork and lamb. (Same course as FDSC 3322)


ANSI 3310 Advanced Competitive Evaluation. 2 credits, max 6. Lab 6. Prerequisite(s): Consent of instructor. Advanced instruction in animal and/or product evaluation. For students competing on collegiate judging teams. (Same course as FDSC 3310)


ANSI 3322 Applied Meat Animal Selection. Lab 6. Prerequisite(s): 3310 and consent of instructor. 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.

ANSI 3333 Meat Science. Lab 3. Prerequisite(s): 2253, CHEM 1215 or equivalent. 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 emphasizing in the laboratory. (Same course as FDSC 3333)

ANSI 3402 Equine Training Methods. Lab 4. Basic techniques of equine training. Performance of various maneuvers including halter breaking, saddling, longeing, driving, and riding.

ANSI 3410 Peer-Led Team Learning in Animal Science. Prerequisite(s): Consent of instructor. 1-6 credits, max 6. Lab 1-5. 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.

ANSI 3414 Form and Function of Livestock and Poultry. Lab 2. Prerequisite(s): 1124 and BIOL 1114 or consent of instructor. 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.

ANSI 3423 Animal Genomics. Prerequisite(s): Introductory biology. 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.

ANSI 3433 Animal Breeding. Lab 2. Prerequisite(s): 3423. The application of genetic principles to livestock improvement; study of the genetic basis of selection and systematic mating; development of breeding programs based on principles of population genetics.


ANSI 3453 Canine and Feline Genomics. Prerequisite(s): BIOL 1114 or consent of instructor. Overview of fundamental genetic principles and the control of genetic variation in coat color, various disorders and other inherited canine and feline 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.

ANSI 3463 Equine Genetics. Basic Mendelian genetics with direct application to horses. Genetic principles and inheritance of particular equine characteristics and common genetic disorders.

ANSI 3523 Pet and Companion Animal Management. Current concepts and 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, training, reproduction, nutrition, genetics, and breeding.

ANSI 3533 Equine Management and Production. Current topics and trends in the equine industry. Basic principles of equine nutrition, exercise physiology, health care, coat-color genetics, behavior and welfare.

ANSI 3543 Principles of Animal Nutrition. Prerequisite(s): CHEM 1215 or equivalent. Basic principles of animal nutrition including digestion, absorption, and metabolism of the various food nutrients; characteristics of the nutrients; measures of body needs; rate of metabolism.

ANSI 3623 Livestock Behavior and Handling. Prerequisite(s): 1124. Livestock behavior and handling in production agriculture.

ANSI 3653* Applied Animal Nutrition. Lab 2. Prerequisite(s): 3543. Composition, characteristics and nutritive value of feeds and ration additives; qualitative and quantitative nutrient requirements of each of the classes of livestock; formulation of rations for each of the classes of livestock.

ANSI 3703 Animal Management Techniques. Lab 4. 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.

ANSI 3753 Basic Nutrition for Pets. Nutrients, nutrient requirements, feeding practices, food sources, and diet management for pets and companion animals as well as exotic animals and birds.

ANSI 3903 (I) Agricultural Animals of the World. The production and utilization of agricultural animals by human societies.

ANSI 4023 Poultry Science. Lab 2. Prerequisite(s): 1124 and 2132 or 3543. The relationship of the biological concepts and functions of poultry to management practices, incubation procedures, and economic factors utilized by poultry men in the commercial production of table and hatching eggs, broilers, turkeys, and other poultry meat.

ANSI 4132* Welfare Assessment and Audit of Farm Animals. Prerequisite(s): ANSI 3623. 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.

ANSI 4203* Rangeland and Pasture Utilization. Lab 2. Prerequisite(s): RLEM 3913 or 4613. Investigation of the ecological role of livestock and forage interactions; role of grazing and forage utilization in the evaluation of cattle, swine, sheep, horses and poultry.

ANSI 4333* Processed Meat. Lab 3. Prerequisite(s): 3033 or 3333. 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)

ANSI 4423 Horse Science. Lab 2. Prerequisite(s): 3433, 3443 and 3653. 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.

ANSI 4453* Dairy Cattle Science. Lab 2. Prerequisite(s): 3433, 3443 and 3653. 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.

ANSI 4453* Sheep Science. Lab 2. Prerequisite(s): 3433, 3443 and 3653. Breeding, feeding, management, and marketing of commercial and purebred sheep.

ANSI 4613* Beef Cow-Calf Management. Lab 2. Prerequisite(s): 3433, 3443, and 3653. Application of farm and ranch land procurement and management principles with beef cattle acquisition, breeding, nutrition, reproduction, health, management practices, marketing and economic analysis of the commercial cow-calf enterprise.

ANSI 4633* Stocker and Feedlot Cattle Management. Lab 2. Prerequisite(s): 3612, 3653. Application of genetic, physiological, microbiological, nutritional, and engineering principles to the efficient production of swine.

2014-2015 University Catalog
ANSI 4703* Equine Enterprise Management. Prerequisite(s): 3433 and 3443 and 3653. Principles of equine enterprise management including ethical and legal issues, marketing, facility management, business structures, economic analysis and careers.

ANSI 4713 Beef Seedstock Management and Sales. Lab 2. Prerequisite(s): 3433, 3443, and 3653. Principles of beef cattle seedstock acquisition, breeding, nutrition, reproduction, health, life cycle management and economic analysis. Special emphasis on advertising, promotion, marketing and sales.

ANSI 4803* Animal Growth and Performance. Prerequisite(s): An upper-division course in animal science. Physiological and endocrine factors affecting growth and performance of domestic animals.

ANSI 4843 Applications of Biotechnology in Animal Science. Lab 3. Prerequisite(s): 3423 and BIOG 3653. Training in current biotechniques used in protein, hormone, and molecular genetic research in food and animal science. Theory and applications of the various techniques.

ANSI 4863 Capstone for Animal Agriculture. Lab 2. Prerequisite(s): Senior standing. Examination of the role of animal agriculture in society and the importance of research and current issues. Oral and written reports.

ANSI 4900 Special Problems. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. A detailed study of an assigned problem by a student wishing additional information on a special topic.

ANSI 4910* Animal Industry Internship. 1-12 credits, max 12. Prerequisite(s): Consent of instructor. Full-time internship at an approved production, processing or agribusiness utilizing a state 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.

ANSI 4913* Animal Waste Management. Prerequisite(s): SOIL 2124. Aspects of animal waste management related to animal nutrition, system design, land application, socioeconomic issues and environmental impacts. (Same course as SOIL 4913, ENVR 4913)

ANSI 4973 Rangeland Resources Planning. Lab 3. Prerequisite(s): 3612 and AGRON 4954. 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 NREM 4613)

ANSI 5000* Master's Research and Thesis. 1-6 credits, max 6. Prerequisite(s): MS degree. Independent research planned, conducted, and reported in consultation with a major professor.

ANSI 5010* Special Problems. 1-3 credits, max 6. 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.

ANSI 5110* Seminar. 1 credit, max 3. A critical review and study of the literature; written and oral reports and discussion on select subjects. (Same course as 6110*)

ANSI 5113 Basic Reproductive Physiology. Prerequisite(s): 3443 or equivalent. Female and male reproductive processes, endocrine control of reproductive functions, and the application of reproductive physiology to animal production.

ANSI 5123 Functional and Molecular Endocrinology. Prerequisite(s): An upper division physiology course. 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.

ANSI 5213* Advances in Meat Science. Prerequisite(s): BIOG 4113 and ZOOL 3204 or equivalent. 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 FDS 5213)

ANSI 5303* Advanced Animal Breeding. Prerequisite(s): 3433 or equivalent and STAT 4013. Basic concepts of population genetics as related to theoretical animal breeding, including heritability, genetic correlations, selection methods, inbreeding and heterosis.

ANSI 5313 Marker-Assisted Selection in Livestock. Prerequisite(s): 3433 or equivalent and STAT 4013. 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.

ANSI 5333 Carcass Value Estimation Systems. Prerequisite(s): Graduate classification. Analysis of scientific literature regarding carcass composition, quality and palatability. Overview of technology used to evaluate carcass quality factors. (Same course as FDS 5333)

ANSI 5553* Interpreting Animal and Food Science Research. Prerequisite(s): STAT 5013 or concurrent enrollment. Critical evaluation and knowledgeable communication on the design, analyses, and reporting of animal science and food science research. (Same course as FDS 5553)

ANSI 5573* Techniques in Animal Molecular Biology. Lab 4. Prerequisite(s): BIOG 4113. 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.

ANSI 5733* Advanced Ruminant Nutrition. Lab 2. Prerequisite(s): 3653. 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.

ANSI 5743* Rumenology. Prerequisite(s): 3653 or equivalent. 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.

ANSI 5753 Animal Nutrition Techniques and Laboratory Methods. Lab 2. Prerequisite(s): CHEM 3015 or equivalent. 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.

ANSI 5763* Advanced Nonruminant Nutrition. Prerequisite(s): BIOG 3653. 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.

ANSI 5773* Protein Nutrition. Prerequisite(s): BIOG 3653. Nutritional, biochemical and clinical aspects of protein metabolism as it relates to nutritional status.

ANSI 5783* Vitamin and Mineral Nutrition. Prerequisite(s): BIOG 5753. 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.

ANSI 6000* Doctoral Research and Dissertation. 1-10 credits, max 30. Prerequisite(s): MS degree. 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.

ANSI 6010* Special Topics in Animal Breeding. 1-3 credits. Prerequisite(s): Consent of instructor. Advanced topics and new developments in animal breeding and population genetics.

ANSI 6110* Seminar. 1 credit, max 3. 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 5110*)

Anthropology (ANTH)

ANTH 2353 (N) Introduction to Biological Anthropology. Introduction to human biological evolution, including genetics, paleoanthropology, primatology, and osteology.

ANTH 2883 Introduction to Archaeology. 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.

ANTH 3353 (I,S) Cultural Anthropology. Introduction to culture, various subdisciplines of cultural anthropology, anthropological concepts, and capsule ethnographies of assorted ethnic groups.

ANTH 3443 (I,S) Peoples of Mesoamerica. 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.

ANTH 3990 Fieldwork in Anthropology. 1-8 credits, max 8. Prerequisite(s): Consent of instructor. Instruction through ethnographic or archaeological field techniques by participation in a field project. Topics subject to change from year to year depending upon the type of field program offered or available.

ANTH 4123 Archaeology of North America. Prerequisite(s): ANTH 2883. 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.

ANTH 4223 (H) The Aztec Empire. 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.

ANTH 4443 Prehistory of Oklahoma. Prerequisite(s): ANTH 2883. 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.

ANTH 4883 (I,S) Comparative Cultures. Compares environments, economies, social and political organizations and other aspects of culture among selected literate and preliterate societies.
ANTH 4990* Special Topics in Anthropology. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed readings or research on significant topics in anthropology.

ANTH 5243* Globalization and Culture. Prerequisite(s): Admission to Graduate College and International Studies. 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.

ANTH 5950* Advanced Problems and Issues in Anthropology. 1-9 credits, max 9. Prerequisite(s): Consent of instructor. Group enrollment or individual research enrollment as needed. Graduate level analysis of special problems and issues in Anthropology not covered in other department offerings.

Architecture (ARCH)

ARCH 1112 Introduction to Architecture. An introduction to the professions of architecture and architectural engineering.

ARCH 1216 Architectural Design Studio I. Lab 16. Architectural graphics and design fundamentals. Students who have not received a grade for 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 adviser.

ARCH 2003 (H) Architecture and Society. Design, planning, and building considered in their social and aesthetic contexts. Some sections may be restricted to Architecture and Architectural Engineering majors, see course offerings.

ARCH 2100 Architectural Studies. 1-4 credits, max 4. Beginning studies in graphics and design in architecture.

ARCH 2116 Architectural Design Studio II. Lab 16. Prerequisite(s): Grade of "C" or better in 1216. Students who have not received a grade for 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.

ARCH 2203 History and Theory of Architecture Since 1900. Prerequisite(s): 2003 or consent of instructor. History and theory of world architecture in the 20th century and beyond.

ARCH 2216 Architectural Design Studio III. Lab 16. Prerequisite(s): Grade of "C" or better in 1216 and 2116. Problems in architectural design. Students who have not received a grade for 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.

ARCH 2263 Building Systems. Prerequisite(s): Grade of "C" or better in 1216 and 2116. Architectural, structural, and environmental control systems.

ARCH 3083 (H) History and Theory of Baroque Architecture. Prerequisite(s): 2003. History and theory of renaissance architecture in the western world, particularly the later Baroque period.

ARCH 3100 Special Topics in Architecture. 1-6 credits, max 12. Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas.

ARCH 3116 Architectural Design Studio IV. Lab 16. Prerequisite(s): Grade of "C" or better in 2216 and admission to third year. Problems in architectural design.

ARCH 3134 Architectural Science I: Thermal Systems and Life Safety. Lab 2. Prerequisite(s): MATH 1513 or 1715. A survey of the fundamentals of thermal comfort, energy concerns, and mechanical systems for buildings as well as the basic principles of life safety.

ARCH 3143 Structures: Analysis I. Lab 2. Prerequisite(s): Grade of "C" or better in ENSC 2143. Structural theory for applications in architecture.

ARCH 3173 History and Theory of American Architecture. Prerequisite(s): 2003 or consent of instructor. History and theory of American architecture from the colonial period to the present day.

ARCH 3216 Architectural Design Studio V. Lab 16. Prerequisite(s): Grade of "C" or better in 3116, 3252. Problems in architectural design.

ARCH 3223 Structures: Timbers. Lab 2. Prerequisite(s): Grade of "C" or better in 3233. Analysis and design of timber structures used in architecture.

ARCH 3224 Structures: Steel II. Lab 2. Prerequisite(s): Grades of "C" or better in 3233 and 3143. Design and analysis of multi-story steel frames, trusses, arches, and other structural components used in architecture applications.

ARCH 3252 Computer Applications in Architecture I. Prerequisite(s): Grade of "C" or better in 2216 and admission to professional school. Introduction to 2D and 3D computer topics and their application in the design process. No credit for students with credit in 3253.

ARCH 3262 Computer Applications in Architecture II. Lab 2. Prerequisite(s): Grade of "C" or better in 3252 and concurrent enrollment in 3216. State-of-the-art applications of computers to the practice of architecture and architectural engineering.

ARCH 3263 Materials in Architecture. Prerequisite(s): Grade of "C" or better in 2263 and admission to third year. 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.

ARCH 3273 History and Theory of Medieval Architecture. Prerequisite(s): 2003 or consent of instructor. 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.

ARCH 3323 Structures: Steel I. Prerequisite(s): Grade of "C" or better in ENSC 2113 and admission to the professional program, or permission of school head and adviser. Analysis and design of steel structures used in architecture.

ARCH 3353 Advanced Graphics and Theory of Representation. Lab 2. Prerequisite(s): Admission to Professional School or consent of instructor. Manual and digital graphic techniques are explored in a project-based studio learning environment.

ARCH 3370 Urban USA Field Study. 2-3 credits, max 3. Prerequisite(s): Admission to Professional School. On-site analysis and study of architecture, culture and urban design of major urban centers in the USA.

ARCH 3383 Architectural Science II: Acoustics and Lighting. Prerequisite(s): MATH 1513 or 1715. A survey of architectural acoustics, electrical, and lighting systems for buildings.

ARCH 3442 Computer Applications in Architectural Engineering. Lab 2. Prerequisite(s): Admission to the professional program, co-requisite enrollment with 3452. Computer applications in architectural engineering introducing computer programming and the use of commercial analytical software.

ARCH 4073 (H) History and Theory of Early Modern Architecture. Prerequisite(s): 2003. History and theory of modern architecture in the western world from the industrial revolution to the early twentieth century.

ARCH 4093 Architectural Project Management. Prerequisite(s): Concurrent enrollment in 4216 or 5226 or consent of instructor. Principles of management as applied to architectural and architectural engineering projects.

ARCH 4100 Special Topics in Architecture. 1-6 credits, max 12. Prerequisite(s): Consent of instructor and head of the school. Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas.

ARCH 4116 Architectural Design Studio VI. Lab 16. Prerequisite(s): Grade of "C" or better in 3216 and 3262. Problems in architectural design.

ARCH 4123* Structures: Concrete I. Lab 2. Prerequisite(s): Grade of "C" or better in 3233. Analysis and design applications in architectural problems using concrete structures.

ARCH 4134 Architectural Science I: Thermal Systems and Life Safety for Architectural Engineers. Prerequisite(s): ENSC 2213 or concurrent enrollment. Engineering based fundamentals of thermal comfort, energy concerns, and mechanical systems for buildings, as well as the basic principles of life safety.

ARCH 4143* Structures: Foundations for Buildings. Lab 2. Prerequisite(s): Grade of "C" or better in 4213. Interaction of frames and supports for structures used in architecture. Subsurface conditions and design of foundation systems and retaining walls for buildings.

ARCH 4173 History and Theory of Skyscraper Design. Prerequisite(s): 2003 or consent of instructor. History and theory of the development of the skyscraper in the USA from the late 19th century to the present.

ARCH 4183* History and Theory of Architecture: Cities. Prerequisite(s): 2003. The development of cities as an aspect of architecture from ancient times to the twentieth century.

ARCH 4216 Architectural Design Studio VII. Lab 16. Prerequisite(s): Grades of "C" or better in 3114, 3433, 4116, and 4123. Concurrent enrollment in 4283. Problems in architectural design.

ARCH 4224* Structures: Concrete II. Lab 2. Prerequisite(s): Grade of "C" or better in 4213, 3442, and 4143. Design and analysis of multi-story reinforced concrete frames and prestressed and post-stressed concrete structural components used in architecture applications.

ARCH 4233* Sustainability Issues in Architecture. Prerequisite(s): Grade of "C" or better in 3134. Sustainability topics and their application to architecture.

ARCH 4263 Architecture Seminar. Prerequisite(s): Concurrent enrollment in 4216 or 5226. Topics in architecture and architectural engineering.


ARCH 4293 (H) The Ethics of the Built Environment. Prerequisite(s): Admission to the professional program or consent of instructor. Analysis of basic values that determine the form of the built environment.

ARCH 4373* Field Study in Europe I. Prerequisite(s): Senior standing in architecture or consent of instructor. On-site analysis and study of European architecture, culture, and urban design.

ARCH 4433 Architectural Science II: Acoustics and Lighting for Architectural Engineers. Lab 2. Prerequisite(s): ENSC 2513 or concurrent enrollment. Engineering based fundamentals of architectural acoustics and electrical/lighting systems for buildings.
ARCH 4444* Structures: Analysis II. Lab 2. Prerequisite(s): Grade of "C" or better in ARCH 3143, 3442 and MATH 3263. Mathematical formulation of architectural structural behavior. Matrix applications, finite element, finite differences, stability considerations and three dimensional structural modeling.

ARCH 5023* Masonry Design and Analysis. Prerequisite(s): Grade of "C" or better in 4123. Analysis and design of low-rise masonry structures and multi-story masonry shear walls, including code requirements, analysis techniques, design of components, and detailing of architectural engineering contract documents conforming to the relevant codes.

ARCH 5083* History and Theory of Japanese Architecture. Prerequisite(s): Admission to the professional school or consent of instructor. Historical Japanese architecture from 200 BC to 1980; Shinto, Buddhist, Zen Sukiya, Zukini, Minka and contemporary subjects.

ARCH 5093* Real Estate Development. Prerequisite(s): Admission to professional program, or consent of instructor. Introduction to real estate development as a function of project conception, analysis, design and delivery.

ARCH 5100* Special Topics in Architecture. 1-6 credits, max 12. Prerequisite(s): Admission to the professional school or consent of the school. Subjects to be selected by the faculty in architecture from advances in state-of-the-art areas.

ARCH 5117* Architectural Design Studio VIII. Lab 16. Prerequisite(s): Grade of "C" or better in 4216 or permission of school head or advisor. Problems in architectural design.


ARCH 5193* Management of Architectural Practice. Prerequisite(s): Fifth-year standing in architecture or architectural engineering or consent of instructor. Principles of management as applied to the private practice of architecture and architectural engineering.

ARCH 5217* Architectural Design Studio IX. Lab 16. Prerequisite(s): Grade of "C" or better in 5117 or consent of instructor. Problems in architectural design.

ARCH 5226* Architectural Engineering Comprehensive Design Studio. Lab 16. Prerequisite(s): Grade of "C" or better in 3116, 3224, 4134, 4224, and 4433. Problems in architectural and architectural engineering design.

ARCH 5373* Field Study in Europe II. Prerequisite(s): Senior standing in architecture or consent of instructor. On-site analysis and study of European architecture, culture and urban design.

ARCH 5493* Entrepreneurship and Architecture. Prerequisite(s): Senior standing. 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)

ARCH 6000* Special Problems. 1-15 credits, max 15. Lab 3-18. Prerequisite(s): Consent of instructor and head of school. 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.

ARCH 6073* History and Theory of Non-Western Architecture. Prerequisite(s): Graduate standing or consent of instructor. Architecture in the non-Western and pre-Columbian world.

ARCH 6083* History and Theory of Contemporary Architecture. Prerequisite(s): Graduate standing or consent of instructor. American architecture beginning in the 16th century through the 20th century. Preparation for the sophomore review.

ARCH 6117* Graduate Design Studio I. Lab 20. Prerequisite(s): Admission to graduate program. Problems in architectural design.

ARCH 6193* Financial Management for Architects and Engineers. Prerequisite(s): 3116. Financial aspects of design firm management, including fundamentals of finance, profit planning and control, cash management, and analysis of financial statements.

ARCH 6203* Creative Component in Architectural Engineering. Lab 6. 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 adviser and completed in the final semester of the graduate program.

ARCH 6207* Creative Component in Architecture. Lab 20. Prerequisite(s): 6117. 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.

ARCH 6243* Structures: Analysis III. Prerequisite(s): Grade of "C" or better in 4444 and admission to the graduate program. Analysis techniques for architectural structures including stability, space frames, computer applications, guyed towers and project research.

ARCH 6343* Structures: Steel III. Prerequisite(s): Grade of "C" or better in 3224. Plastic analysis and design of structural steel frames utilizing load and resistance factor design.

ARCH 6543* Structures: Concrete III. Prerequisite(s): Grade of "C" or better in 4224. Design of prestressed concrete structures, including pre- and post-tensioning.

Art (ART)

ART 1103 Drawing I. Lab 6. 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.

ART 1113 Drawing II. Lab 6. Prerequisite(s): 1103. Objective and subjective approach 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.

ART 1203 Two-Dimensional Foundations. Lab 6. Introduction to visual problem solving and two-dimensional media. Organization to the two-dimensional plane; line, shape, value and texture. Color theory including hue, value and saturation.

ART 1303 Three-Dimensional Foundations. Lab 6. Prerequisite(s): 1103. Exploration of three-dimensional form and space stressing organization of design elements, development of concepts, and manipulation of materials. Investigation of linear space, modular ordering, mass/volume and color through projects of a conceptual and applied nature.

ART 1503 (H) Art History Survey I. The arts, artists, and their cultures from prehistoric times through the Early Renaissance. May not be used for degree credit with ART 1603.

ART 1513 (H) Art History Survey II. The arts, artists, and their cultures from the Early Renaissance to the present. May not be used for degree credit with ART 1603.

ART 1603 (H) Introduction to Art. Introductory survey of art history from ancient times to the present. May not be used for degree credit with ART 2603 or 2613.

ART 2002 Studio Methods and Preparation. Lab 4. Portfolio concept development including idea generation, sketchbook, analyzing and evaluating art criticism and select contemporary artists. Professional portfolio presentation, including matting, slide documentation, labeling and resume as a precursor to the sophomore review.

ART 2113 Life Drawing. Lab 6. Prerequisite(s): 1113. 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.

ART 2223 Oil Painting I. Lab 6. Prerequisite(s): 1113, 1203, 1303, or consent of instructor. The development of skills in oil painting stressing form and content, visual perception, and individual expression. Technical instruction applicable to individual problems and needs.

ART 2233 Watercolor I. Lab 6. Prerequisite(s): 1113, 1203, 1303, or consent of instructor. The development of technical skills stressing color, form, and content. Assignments include paper preparation and support, brush handling, pigment characteristics and mixing, and all basic dry surface and wet surface painting techniques.

ART 2243 Jewelry and Metals I. Lab 6. Prerequisite(s): 1113, 1303, or consent of instructor. Fabrication and forming techniques for non-ferrous metals. Gold jointery, silver soldering, surface treatment and elementary stone setting. Applications toward either wearable or small scale sculptural form.

ART 2253 Ceramics I. Lab 6. Prerequisite(s): 1113, 1303, or consent of instructor. Introduction to basic building techniques including wheel throwing, coilings, 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.


ART 2273 Printmaking I. Lab 6. Prerequisite(s): 1113, 1203, 1303 or consent of instructor. Varied print processes, including monotypes, relief printmaking, and intaglio. Fundamental techniques of each medium that include inking, printing, exchanging multiples, and both additive and subtractive approaches.

ART 2283 Studio Art Digital Survey. Lab 6. Prerequisite(s): 1103 and 1303 and 1203 or 2423 and 2433 or by consent of instructor. 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.

ART 2403 Illustration I. Lab 6. Prerequisite(s): 1113 and 2.75 graduation/retention GPA. 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.

ART 2413 Typography I Lab 6. Prerequisite(s): 1113 and 2.75 graduation/retention GPA. An investigation of letter forms and their characteristics and a study of spacing, leading, type selection, layout alternatives, type specification, and copy fitting practices. Introductory to typography as a communication medium. An understanding of typographic terminology and measuring systems while developing hand skills and introducing computer technology.

ART 2423 Graphic Design I Lab 6. Prerequisite(s): 1113 and 2.75 graduation/retention GPA. 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.

ART 2433 Digital Design I Lab 6. Prerequisite(s): 1113 and 2.75 graduation/retention GPA. Introduction to concepts, techniques and methods of using computer software to explore graphic design principles. Discussion of techniques and methods related to visual communication.

ART 2643 Introduction to Museum and Curatorial Studies. 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.

ART 2693 (H) Survey of Asian Art. Arts of India, China, Japan and related countries in their historical and cultural settings. Conditions of painting, sculpture and architecture from their beginnings to the modern period.

ART 2733 (H) Survey of Latin American Art. 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 avant garde, Mexican muralism and surrealism, and contemporary video, performance and installation.

ART 3110 Life Drawing Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 2113 or consent of instructor. 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.

ART 3223 Oil Painting II Lab 6. Prerequisite(s): 2223 and proficiency review or consent of instructor. Oil painting with emphasis on personal development of visual ideas and techniques.

ART 3233 Watercolor II Lab 6. Prerequisite(s): 2233 and proficiency review or consent of instructor. Stresses continued growth of technical skills with an emphasis on the individual development of ideas and imagery.

ART 3243 Jewelry and Metals II Lab 6. Prerequisite(s): 2243 and proficiency review or consent of instructor. Development of technical skills and ideas through assigned projects. Metalworking processes include casting, advanced stone setting, hinge making, and forming of metal.

ART 3253 Ceramics II Lab 6. Prerequisite(s): 2253 and proficiency review or consent of instructor. 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 historical context.


ART 3273 Printmaking II. Prerequisite(s): 2273 and proficiency review or consent of instructor. 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.

ART 3293 New Genres in Studio Art. Prerequisite(s): 2293. 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.

ART 3383 Digital Imaging Lab 6. Prerequisite(s): 2283 or 2423 and 2433 or by consent of instructor. 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 applying proficiency in producing formats, while allowing more advanced students to incorporate media of personal interest.

ART 3403 Illustration II Lab 6. Prerequisite(s): 2403, 2413, 2423 and portfolio review. 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.

ART 3413 Typography II Lab 6. Prerequisite(s): 2403, 2413, 2423 and portfolio review. 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.

ART 3423 Graphic Design II Lab 6. Prerequisite(s): 2403, 2413, 2423 and portfolio review. 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.

ART 3453 Motion Design 1. Prerequisite(s): 2403, 2413, 2423 and portfolio review. 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 creating motion graphic intended to be experienced via electronic media, with an emphasis on typography, composition and design principles.

ART 3463 Interaction Design 1. Prerequisite(s): 2403, 2413, 2423 and portfolio review. Introduction to the basic concepts and techniques of interactive 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.

ART 3543 Leonardo, Art and Science. Explores the deeply entwined fields of Renaissance art and science though 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.

ART 3553 Fashioning and Self Fashioning: The Renaissance Portrait. 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.

ART 3600 Writing Methods in Art History. 1 credit. Prerequisite(s): Consent of instructor. A supervised research and writing project, typically concurrent with enrollment in an upper-division art history course.

ART 3603 (H) History of Classical Art. Stylistic, philosophical, and formal qualities of art in the Classical world. The creation of the Greek ideal and its development through the Roman world, with an emphasis on the visual culture (sculpture, manuscripts, architecture, etc.) of the later Middle Ages.

ART 3623 (H) History of Italian Renaissance Art. 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).

ART 3633 (H) History of Baroque Art. 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).

ART 3643 Graphic Design. 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.

ART 3653 (H) History of 19th Century Art. Art of 19th century Europe—ideals, conflicts, escapes, and triumphs, beginning with the French Revolution and ending in 1900.

ART 3663 (D,H) History of American Art. Visual arts in America from the Colonial period to the present day. Major styles, ideas and uses of material in architecture, painting, sculpture, and design. Same course as AMST 3673.

ART 3673 History of Northern Renaissance Art. 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).


ART 3713 (H) Early Medieval Art: Saints, Martyrs, Pagans. 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.

ART 3723 (H) Court and Cloister: Medieval Art 1050-1400. 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.

ART 3743 (H,L) History of Latin American Art II. 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. The focus is on Latin American artists and their contributions to the development of art in the Americas.

ART 4100 Advanced Drawing. 3 credits, max 9. Lab 6. Prerequisite(s): 3110. Investigation of drawing stressing thematic development, abstract ideas, and individual imagery.
ART 4110  BA Studio Capstone. Prerequisite(s): 2002 and senior standing or consent of instructor. 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.

ART 4211  BFA Studio Capstone Exhibition. Prerequisite(s): Must have passed the BFA Studio Capstone Exhibition Review; must have consent of final批评or and guidance and instructor 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.

ART 4213  BFA Studio Capstone. Prerequisite(s): Concurrent enrollment in upper-division studio art course and consent of instructor. 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.

ART 4220  Oil Painting Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3223. Oil painting with emphasis on continuing personal development of visual ideas and techniques.

ART 4230  Watercolor Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3233. Stresses continued growth of personal imagery with an emphasis on the development of a consistent body of work and professional portfolio.

ART 4240  Jewelry and Metals Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3243. 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.

ART 4250  Ceramics Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3253. 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.

ART 4260  Sculpture Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3263. 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.

ART 4270  Printmaking Studio. 3 credits, max 9. Prerequisite(s): 3273 and proficiency review or consent of instructor. 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.

ART 4420  Graphic Design Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3423, 3443 or consent of instructor. Design and production of projects suited to the professional portfolio. Discussion of practical issues including career options, resume and portfolio preparation, and interview techniques.

ART 4430  Illustration Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3403, 3443 or consent of instructor. Conceptual development and production of illustrations in series. Development of individual style and assembly of a professional and consistent portfolio.

ART 4450  Motion Design Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3443 or consent of instructor. 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 applied design principles.

ART 4460  Interaction Design Studio. 3 credits, max 9, Lab 6. Prerequisite(s): 3453 or consent of instructor. Exploration of the visual and technical aspects of interaction between a variety of 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.

ART 4493  Portfolio Capstone. Lab 6. Prerequisite(s): Senior standing and consent of instructor. 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.

ART 4583 (H) Rome: The Eternal City in Art and Film. 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 5583.

ART 4593 (H) Art of Conversion: 16th Century Art in Mexico. Art and architecture of the sixteenth century, including mission architecture, early altar-screen, and the effect of European imports on native art production, and the role of confraternities and public ceremonies on context-period culture. No credit for students with credit in 5593.

ART 4603  History of Ancient Egyptian Art. 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.

ART 4613 Art Since 1960. Art and art theory from 1960 to the present. Major trends of Minimalism, Pop Art, Photo Realism, Performance, and Conceptual Art. Theories and intellectual bases of each movement as well as major critical responses. No credit for students with credit in 5613.

ART 4623 History of Prints and Printmaking. A survey of graphic art in Europe and the United States (c. 1450-1950). Woodcut, intaglio and lithography by major masters (e.g. Dürer, Rembrandt, Goya, Picasso). Print as a document of social history in the West.

ART 4633 (H) The Frontier and American Visual Culture. The frontier and its impact on American culture examined through a survey of paintings, sculpture, photography, film, television, and other forms of popular imagery. The frontier as a zone of cultural interaction that is seldom tied to a single culture. (Same course as AMST 4635).

ART 4653 History of Indian Art. The history and culture of South Asia (India and Pakistan) are explored through its arts—architecture, sculpture, painting, and design.

ART 4663 (H) History of Chinese Art. 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 5663.

ART 4673 History of Japanese Art. 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 5673.

ART 4683* Modern and Contemporary Art in Asia. Modern and contemporary art in Asia. Special attention to the role of race, gender, and social class on artistic production.

ART 4693 Gender and Visual Culture. 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, feminism, historicizing gender, feminism and feminist theory, etc. No credit for students with credit in 5693.

ART 4703 Art East and West: Biases and Borrowings. 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, Southeast Asia 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 5703.

ART 4713 The Visual Culture of the Islamic World. 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 5713.

ART 4723 History of Museums and Collecting. Investigation of the history of museums and collecting practices in Western Europe and the United States from the sixteenth to the mid-20th century. Same course as ART 5723.

ART 4763 Native American Art and Material Culture. 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 Northern Plains, the Southeast, the Great Plains, the Southwest, the Plateau and West Coast, and the Northwest Coast. No credit for students with credit in 5763.

ART 4783 Rembrandt van Rijn. 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 is to acquaint students with both his extensive body of work and the central critical issues that interest scholars today. Same course as ART 5783.

ART 4793 Architecture and Space in East Asia. 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, cultural, religious, and political relationships, both symbolically and in practice.

ART 4800 Special Studies in Art. 1-3 credits, max 9. Prerequisite(s): Junior standing and consent of instructor. Courses in media exploration, special subjects and current issues. Offered on campus or through extension workshops.

ART 4815 Museum Internship. 1-3 credits, max 9. An on-site museum experience, including exhibition selection and preparation, collection cataloging and research, and museum administration.

ART 4813 Museum Exhibition. Designing an exhibition that draws on the Oklahoma State University art collection. Includes museum history, theory and curatorial practice. Same course as ART 5813.

ART 4820 Graphic Design Internship. 1-6 credits, max 6. Prerequisite(s): 3403 or 3423 and consent of instructor. An on-site graphic design work experience that provides professional practice under the supervision of a design professional.

2014-2015 University Catalog
ART 4830 Apprenticeship. 1-6 credits, max 6. Professional opportunity to work with artists of national and international reputation.

ART 4900* Directed Study in Art. 1-3 credits, max 9, Lab 1-6. Prerequisite(s): Junior standing and written permission of department head. Self-designed special topics in studio art or graphic design. By contract only.

ART 4910* Directed Study in Art History. 1-3 credits, max 9, Lab 1-6. Prerequisite(s): Junior standing and written consent of department head. Self-designed special topics in art history. By contract only.

ART 4920 Art History Symposium. 1 credit. Prerequisite(s): One hour of ART 3600 and 4933. Specifically for art history majors, and typically taken during the student’s final year. Students prepare for, and participate in, a public presentation of a research paper (ART 3600). Special attention is given to a speaker’s argument, methodology, visual, and overall presentation.

ART 4933 Art in Context. Prerequisite(s): One hour of ART 3600. Designed specifically for art history majors, and typically taken during the junior year, this course examines select critical theories and their methodological application.

ART 4973* 20th Century Chinese Art. This course will explore the ways in which Chinese artists of the 20th century have defined China’s history and culture.

ART 4993 Senior Honors Project. Lab 3. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

ART 5000* Art History Master’s Thesis. 1-3 credits, max 6. Independent study course intended to provide guidance for research and writing of MA Thesis in art history.

ART 5013* Theory and Methods in Art History. 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.

ART 5583* Rome: The Eternal City in Art and Film. 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 4583.

ART 5593* Art of Conversion: 16th Century Art in Mexico. 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 4593.

ART 5613* Art Since 1960. Prerequisite(s): Permission of instructor. Art and art theory from 1960 to present. Major trends of Minimalism, Pop Art, Photorealism, Performance, and Conceptual Art. Theories and intellectual bases of each movement as well as major critical responses. No credit for students with credit in 4613.

ART 5663* History of Chinese Art. 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 4663.

ART 5673* History of Japanese Art. 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 4673.

ART 5693* Gender and Visual Culture. 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 4693.

ART 5703* Art East and West: Biases and Borrowings. Prerequisite(s): Instructor permission. Explores the complicated interaction, cultural borrowings and responses on the 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 4703.

ART 5713* The Visual Culture of the Islamic World. Examines the visual culture, including architecture, of the Islamic world, dating from the inception of Islam in seventh-century Arabia through today. No credit for students with credit in 4713.

ART 5723* History of Museums and Collecting. Prerequisite(s): Graduate standing. 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.

ART 5763* Native American Art and Material Culture. Prerequisite(s): Permission of instructor. 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 4763.

ART 5783* Rembrandt van Rijn. Prerequisite(s): Graduate standing or permission of instructor. 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 4783.

ART 5813* Museum Exhibition. Prerequisite(s): Graduate standing or permission of instructor. Designing an exhibition that draws on the Oklahoma State University art collection. Includes museum history, theory and curatorial practice. Same course as ART 4813.

ART 5900* Graduate Studies in Art. 1-6 credits, max 12. Prerequisite(s): BA, BFA or 15 upper-division hours in a discipline; consent of instructor. Projects in art with emphasis on portfolio preparation.

ART 5910* Graduate Studies in Art History. 1-6 credits, max 12. Prerequisite(s): BA, BFA or 15 upper-division hours in art history; consent of instructor. Advanced research in art history.

ART 5920* Art History Graduate Seminar: Special Topics. 3-12 credits, max 12. Special topics graduate seminar in art history.

Arts and Sciences (A&S)

A&S 1111 Freshman Orientation. Orientation for freshmen. Study techniques, evaluation of one’s abilities and the making of proper educational and vocational choices.

A&S 1221 Honors Freshman Orientation. Prerequisite(s): Honors Program participation. Orientation for freshmen to Arts and Sciences Honors program, introduction to University academic expectations, techniques for achieving academic success, and substantive introduction to material in selected academic disciplines. No credit for students with credit in A&S 1111.

A&S 2000 Special Topics. 1-3 credits, max 6. Selected interdisciplinary topics presented in lecture or seminar format.

A&S 2001 Introduction to European Studies. Overview of the history, languages, and cultures of the nations currently constituting the European Union.

A&S 3080 International Experience. 1-18 credits, max 36. Prerequisite(s): Consent of the associate dean of the college. Participation in a formal or informal educational experience outside of the USA.

A&S 3090 (I) Study Abroad. 1-18 credits, max 36. Prerequisite(s): Consent of the Study Abroad office and associate dean of the college. Participation in an OSU reciprocal exchange program.

A&S 3111 New Student Seminar. Orientation to OSU for new transfer students. Topics include advanced study and writing skills, financial management, career development and the transition from college to work.

A&S 3710 Arts and Sciences Internship. 1-3 credits, max 6. Prerequisite(s): Junior standing. Practicum or internship experiences not included in departmental offerings. Before enrolling, students must have an individual contract approved by the sponsoring Arts and Sciences professor and the dean of Arts and Sciences (or administrative officer). For use in special circumstances by Arts and Sciences departments that do not have an internship course.

A&S 4000 Special Topics. 1-3 credits, max 6. Selected interdisciplinary topics presented in lecture or seminar format. Some sections may be pass/fail.

A&S 4013 Liberal Studies Senior Project. Prerequisite(s): Consent of instructor. Research report or other creative activity undertaken to satisfy capstone requirement for liberal studies degree.

A&S 4111 Job Search Strategies for Arts and Sciences Majors. Prerequisite(s): Junior standing. Identification of individual goals and transferable skills, exploration of career options, job market research, and development of employment search tools.

Astronomy (ASTR)

ASTR 1014 (N) The Solar System. 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. No credit for those with credit in 1104.

ASTR 1024 (N) Stars, Galaxies and the Universe. 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. No credit for those with credit in 1104.

ASTR 4010 Observatory Research. 1-2 credits, max 8. Prerequisite(s): PHYS 2114 and consent of instructor; ASTR 1014 or ASTR 1024 recommended. Team execution of multi-semester observing programs with electronic detectors at OSU’s off-campus observatory. Introduction to digital image processing and analysis.

AVED 1222 Primary Flight Laboratory. Lab 4. Meets the flight requirements for the FAA Private Pilot Certificate. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 1403 Advanced Theory of Flight. Prerequisite(s): 1114 and passed FAA Private Pilot Examination. Advanced navigation, aircraft performance and meteorology, and introduction to crew resource management.

AVED 2113 History of Aviation. 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.

AVED 2122 Intermediate Flight Lab. Lab 4. Prerequisite(s): 2132. Professional Pilot Course emphasizing IFR cross country operations. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 2132 Instrumental Flight Lab. Lab 4. Prerequisite(s): 1222. Professional Pilot Course required for FAA instrument rating. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 2142 Commercial Maneuvers Flight Lab. Lab 4. Prerequisite(s): 2122. Professional Pilot Course emphasizing Commercial practical test maneuvers. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 2213 Theory of Instrument Flight. Prerequisite(s): 1403. Instrument flight rules, the air traffic system and procedures, the elements of forecasting weather trends. Preparation for FAA instrument computer-based knowledge exam.


AVED 2513 Aviation Career Planning and Development. 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.


AVED 3243 Human Factors in Aviation. The study of people interacting with the aviation environment. Individual and group performance, equipment design, physical environment and procedure development.

AVED 3333 Advanced Aircraft Systems. Prerequisite(s): 2313. Study of complex aircraft systems. Electronic flight instruments, inertial navigation, and aircraft monitoring systems.

AVED 3341 Multi-Engine Flight Laboratory. Lab 2. Prerequisite(s): 2142. Professional Pilot Course emphasizing multi-engine operations, including Commercial certification with Multiengine Rating. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 3433 Aviation/Aerospace Ethics. 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.

AVED 3443 Aviation Legal and Regulatory Issues. 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.


AVED 3463 Aerospace Maintenance and Safety. 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.

AVED 3473 OSHA for Aerospace Managers. 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.

AVED 3483 Airport Passenger and Baggage Screening. 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.

AVED 3493 Analysis of Aviation Security Countermeasures. A comprehensive approach to identification and analysis of security countermeasures in the Aviation industry.

AVED 3513 Aviation/Aerospace Management Principles. Managing the major elements of the aviation/aerospace industry, including aircraft manufacturing and air transportation system.

AVED 3523 Airport Planning and Management. Prerequisite(s): 3523. Overview of the major functions of airport management, including master planning. Study of the socio-economic effects of airports on the communities they serve.

AVED 3533 Aircraft Turbine Engine Operation. 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.

AVED 3543 Aerospace Organizational Communications. Aerospace communication to aid aviation students in proper use of written and verbal skills needed in various aerospace leadership roles.

AVED 3563 Aviation Marketing. Marketing aviation products for the major elements of the aviation industry.

AVED 3573 Aviation/Aerospace Finance. Financing the major elements of the aerospace industry, including general aviation, aircraft manufacturing and air transportation.

AVED 3623 Airport Network Security. Comprehensive evaluation of the airport network landscape to include evaluation and mitigation of potential threats to the overall airport environment.

AVED 3663 Aerospace and Air Carrier Industry. Broad understanding of the air transportation industry and an in-depth knowledge of the organizational structure, 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.

AVED 3883 Space Flight. 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.

AVED 4100 Specialized Studies in Aviation. 1-3 credits, max 6. Independent studies, seminars, and training within selected areas of aviation.

AVED 4103 Aerospace Distribution, Warehousing and Transportation. Aerospace logistics concepts and the management of aerospace distribution activities ranging from top management planning to warehousing and shipping.

AVED 4113 Aviation Safety. 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.

AVED 4123 Aerospace Depot Maintenance. 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.

AVED 4133 Principles of Flight Instruction. Preparation for the FAA Fundamentals of Instructing and Flight Instructor Knowledge Exams, as well as preparation for the CFI Initial Practical Test.


AVED 4153 Aerospace Sustainment. Prerequisite(s): Senior standing. A capstone course requiring application of all elements of the supply-chain management process to an aerospace organizational problem or project.

AVED 4163 FAA and Aerospace Logistics Regulations and Requirements. 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.

AVED 4173 Aerospace Logistics Quality Programs. Logistics quality programs, including TQM, Kaizen, Lean, Six Sigma, and ISO 9000 in aerospace organizations.

AVED 4193 Aerospace Human Resource Management and Aerospace Workforce Acquisition. Workforce planning techniques to strengthen knowledge retention practices within the aerospace industry.

AVED 4200 Internship in Aviation. 1-12 credits, max 12. Individually supervised internship in aviation career areas. Directed field experience related to the participant’s area of concentration.

AVED 4232 Flight Instructor: Airplane Flight Laboratory. Lab 4. Prerequisite(s): 2142, 4133. Dual flight instruction to meet the requirements for the FAA flight instructor: airplane certificate. Flight instruction conducted under FAR Part 141. Special fee required.

AVED 4303 Aviation Weather. Prerequisite(s): GEOG 3033. Familiarization with weather products needed to enhance flight safety.

AVED 4331 Flight Instructor: Instrument Flight Laboratory. Lab 2. Prerequisite(s): 4231. 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. Special fee required.
AVED 4333* Advanced Aircraft Performance. A study of advanced aircraft performance including appropriate physical laws, atmospheric properties and power plant technology.

AVED 4343* Geospatial Technologies for Aerospace Managers. 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.

AVED 4353* Cockpit Automation. Prerequisite(s): 2213, 2132, 3333. A study of aircraft “glass cockpits”, including performance management, navigation and guidance, automatic flight control, flight instrument displays, and crew advisory and warning.

AVED 4413* Aviation Terrorism and Asymmetrical Warfare. 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.

AVED 4423* Aviation Security Organizations and Law. 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.

AVED 4433 Airport Safety Inspections. Safety requirements of U.S. general aviation airports. Elements of the 5010 airport inspection program, FAA advisory circulars, and other pertinent documents.

AVED 4523 Airport Certified Member Preparation. Prerequisite(s): 3523. Course focus is to earn knowledge necessary to successfully complete the AACE Certified Member (CM) designation examination. Comprehensive evaluation of airport management and leadership issues to include administration, air service development, construction, finance, legislative, legal affairs, maintenance, marketing and communications, operations, planning, and security.


AVED 4653 (I) International Aerospace Issues. Fundamental knowledge, comprehension and abilities to apply, analyze, synthesize and evaluate international aerospace issues, including trends in security, safety, technology, and organizations.

AVED 4663 Aerospace Leadership. Leadership theories and practices applicable to the aerospace environment and the types of leadership skills required for 21st Century aerospace organizational leaders.

AVED 4703 Crew Resource Management. Prerequisite(s): 2142, 3243. 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. Ten hours in a dual flight control multi-engine simulator. Special fee required.

AVED 4771 Flight Instructor: Multi-Engine Flight Laboratory. Lab 2 Prerequisite(s): 4231. 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.

AVED 4813 Air Transportation Compliance. Regulatory requirements in the management of air transportation and logistics operations including the shipment of hazardous materials in domestic and international transport, US Customs import/export compliance, and Transportation Safety Administration (TSA) requirements.

AVED 4883 Capstone Course in Aviation Management. Prerequisite(s): Aviation Management major with senior status. Applies knowledge and issues acquired in prior aviation courses.

AVED 4943* Basic Aircraft Accident Investigation. A study of statutes, regulations and regulatory agency requirements that influence aircraft accident investigation.

AVED 4953* Corporate and General Aviation Management. Study of management principles and practices of corporate and general aviation. Equipment acquisition requirements, legal issues, finance, operations, aircraft maintenance, management and investment decision-making.

AVED 4963* Airport Design. Overview of airport planning and development parameters, airport design considerations, economic impact of airport development, and a global examination of airport expansion projects.

AVED 4983 Aerospace Industry Hazardous Materials or Dangerous Goods. Regulating hazardous materials and compliance issues in managing aerospace industry hazardous materials and dangerous goods.

AVED 4990 Pilot Proficiency Flight. 1-2 credits, max 4. Lab 32. Required for students entering the aviation education program who possess all FAA certificates/ratings required for the aviation sciences degree.

AVED 4993 Aviation Labor Relations. Aviation industry laws, regulations, and procedures for managing and organized labor. Teaching historical through current perspectives. Focus on economic, legal, political, and public policy factors in aviation.

AVED 5000* Master’s Report or Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of advisor. Students studying for a master’s degree enrol in this course for a total of 3 credit hours if writing a report or 6 hours if writing a thesis.

AVED 5020* Seminar in Aerospace Education. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Individual research problems in aerospace education.

AVED 5053* Guided Reading and Research. Prerequisite(s): Consent of instructor. Guidance in reading and research required for the MS in aviation and space program.

AVED 5103* Aviation Career Development. Aviation career development in private and public aviation organizations.

AVED 5113* Aviation Safety Program Development. Prerequisite(s): 4113. A detailed examination of risk management and accident prevention in the aviation industry. Organization and operation of safety programs including OSHA requirements, performance measurements, cost analysis, and systems safety analysis.

AVED 5153* Capstone in Aerospace Research. Prerequisite(s): 5053. The final culminating project intended to be an in-depth application of the knowledge and skills acquired from the MS Aerospace Education curriculum.

AVED 5200* Graduate Internship in Aviation and Space. 1-6 credits, max 6. Directed field experiences in aerospace education for master’s students.

AVED 5203* Aeromedical Factors. Prerequisite(s): 3243. The study of aeromedical factors that influence pilot performance. The study of life support equipment designed to increase aviation safety.


AVED 5333* Aircraft Performance. 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.

AVED 5363* Aircraft Systems. 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.

AVED 5403* Passenger Screening Technology. Understanding of the technologies currently in use or being tested in airports. Passenger screening technologies and their role in establishing a layered security program.


AVED 5423* Security Planning Audits and NIMS. The management of a security program. Written security plans, security audits, emergency management, and the National Incident Management System.

AVED 5433* General Aviation and Cargo Security. 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.

AVED 5443* International Aviation Security. 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.

AVED 5453* Advanced Aviation Security. Prerequisite(s): Graduate standing. 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.

AVED 5463* Aerospace Risk Assessment. 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.

AVED 5473* Aerospace Education and Training Effectiveness. Curriculum design and instructional effectiveness for aviation/aerospace educators and training professionals.

AVED 5543* Advanced Aerospace Communications. 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.

AVED 5553* Aerospace Proposal and Procurement. Analysis of aerospace proposal writing and federal grant development including the basics of government acquisition and procurement.

AVED 5563 Aerospace Leadership and Management. 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.

AVED 5573* Aerospace Defense Acquisition. 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.

AVED 5593* Influencing Public Policy in the Aerospace Industry. The aerospace legislative process, researching draft legislation, tracking state and federal legislation, communicating with legislators identifying the fiscal impact and benefits.

AVED 5663* Issues in the Airline/Aerospace Industry. 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.

AVED 5720* Current Issues in Aerospace Education. 1-3 credits, max 6. Prerequisite(s): Consent of advisor. Current issues in aerospace education.

AVED 5773* Historical Significance of Aviation. 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.

AVED 5813* Earth Observation Systems. Prerequisite(s): GEOG 4333. A study of systems orbiting earth that collect data on the land and atmosphere.

AVED 5823* Space Science. A study of the sun, inner and outer planets, asteroid belt, space probe exploration, orbital mechanics and missions.

AVED 5850* Directed Readings in Aerospace Education. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed studies in aerospace education.

AVED 5883* Aviation Economics. The economic significance of the air carrier industry and its major segments. The effects of regulation, competition, schedules, market size and environmental control.


AVED 5910* Practicum in Aerospace Education. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed observation and supervised clinical experiences in aerospace education.

AVED 5953* Labor Relations in Aviation and Aerospace. 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.

AVED 5963* Airport Operations. Prerequisite(s): Graduate standing. 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.

AVED 5973* Aerospace Law. Study of the legal system as it relates to aerospace law and governance of the aviation industry.

AVED 5993* Ethics in Aviation. Learning how to protect vital interests and maintain ethical control in highly regulated environments.

AVED 6103* Doctoral Seminar in Aerospace Education. Individual research problems in aerospace education.

AVED 6000* Doctoral Thesis. 1-15 credits, max 15. Required of all candidates for the EdD in applied educational studies. Credit awarded upon completion of the thesis.

AVED 6203* Aviation Physiology. Prerequisite(s): 5203 or equivalent. The study of the complexities of pilot performance as it relates to human physiology, human factors and aviation safety.

AVED 6303* Aviation and Space Safety Data Analysis. A doctoral seminar in the practical application and research of aerospace databases. Qualitative and mixed method tools common to research in the fields of aviation and aerospace are emphasized.

AVED 6313* Administration of Aviation Institutions. 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.

AVED 6413* Development of Air and Space Flight. Specific air and space missions with emphasis on contributions to humankind.

AVED 6423* Certification of Airplanes. A study of the practices and research involved in the certification of airplanes.

AVED 6443* Certification of Rotorcraft. A study of the practices and research involved in the certification of rotorcraft.

AVED 6613* Aviation Executive Development. A study of the styles of aviation executives in private and public aviation organizations.

AVED 6773* Applied Aviation and Space Research. Prerequisite(s): Consent of instructor and approval of student’s advisory committee. 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.

AVED 6883* Doctoral Internship in Aviation and Space. Prerequisite(s): Consent and approval of student’s advisory committee. Directed field experiences in aerospace education for doctoral students.

AVED 6943* Aviation Regulatory Law. A study of the practical application and research of the FAA regulatory process and associated case law.

AVED 6963* Advanced Aircraft Accident Investigation. Prerequisite(s): 4943. Application and practice of the different statutes, regulations, and regulatory agency requirements that influence aircraft accident investigations.

Biochemistry (BIOC)


BIOC 2101 The Experiments Behind the Facts of Real Science. Prerequisite(s): BIOL 1114 and CHEM 1515. Introduction to research through the study of primary research papers.

BIOC 2200 Medicine and Molecules. 1-3 credits, max 6. 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 for cures.

BIOC 2344 Chemistry and Applications of Biomolecules. Prerequisite(s): CHEM 1225. 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.

BIOC 3653 Survey of Biochemistry. Prerequisite(s): CHEM 3015 or 3053. 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.

BIOC 3713 Biochemistry I. Prerequisite(s): CHEM 3153. Biochemistry of proteins, lipids, carbohydrates, and nucleic acids. Designed for biochemistry majors.

BIOC 3723 Analytical Biochemistry and Molecular Biology. Lab 7. Prerequisite(s): 3653 or 3713 or concurrent enrollment. Integrated lecture-laboratory course on fundamental theories and techniques of biochemical, organic, and forensics. Hands-on experience in mass spectrometry. DNA analysis, metabolic assays, kinetic assays, and protein purification.

BIOC 3813 Biochemistry II. Prerequisite(s): 3713. 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.

BIOC 4113* Molecular Biology. Prerequisite(s): 3653 or 3713 and BIOL 3023 or ANSI 3423 or PLNT 3554. Applications of biochemistry, molecular biology and computational engineering with emphasis on protein structure, function, regulation of cell function, metabolism and disease processes.

BIOC 4224* Physical Chemistry for Biologists. Prerequisite(s): 3653 or 3713 and BIOL 3023 or ANSI 3423 or PLNT 3554 or consent of instructor. Classical and statistical thermodynamics with applications to pure systems, solutions and electrolyte systems. An introduction to the chemistry of structure and chemical bond; and spectroscopy all with emphasis on biological applications.

BIOC 4523* Biochemistry of the Cell. Prerequisite(s): 3653 or 3713 and MICR 3033 and BIOL 3023 or ANSI 3423 or PLNT 3554 or consent of instructor. 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.

BIOC 4883 Senior Seminar in Biochemistry. Prerequisite(s): 3813 or consent of instructor. A senior capstone course for the development of scientific oral and written communications and assessment of cumulative abilities. Focus is on problem solving, group discussion, primary literature review, oral presentation, and writing.

BIOC 4990* Special Problems. 1-6 credits, max 10. Training in independent work; study of relevant literature and experimental investigation of an assigned problem.

BIOC 5000* Research. 1-6 credits, max 6. For MS thesis.

BIOC 5002* Biochemistry Graduate Colloquium. Prerequisite(s): Graduate standing. Introduction to graduate research. Policies for laboratory safety, research compliance, and ethical conduct of scientific research are presented.

BIOC 5102* Molecular Genetics. Prerequisite(s): 3653 or MICR 3033 and one course in genetics or consent of instructor. An introduction to molecular genetics on the graduate level. (Same course as GEN 5102).

BIOC 5753* Biochemical Principles. Prerequisite(s): CHEM 3153 or equivalent. 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.
BIOC 5824* Biochemical Laboratory Methods. Lab 6. Prerequisite(s): 4113 or 5753. Lecture and laboratory course in basic biochemical and molecular biology methods for separation and analysis of biological materials, including chromatography, electrophoresis, centrifugation, use of radioisotopes, molecular cloning and DNA sequencing.

BIOC 5834* Metabolism. Prerequisite(s): 5753 or 4113. Reaction sequences and cycles in the enzymatic transformations of fats, proteins and carbohydrates; energy transfer, biosynthesis and integration in the metabolic pathways.

BIOC 5930* Advanced Biochemical Techniques. 1-4 credits, max 10. Prerequisite(s): 5753, 5824 or concurrent registration, and consent of instructor. Lecture and laboratory course in advanced research techniques, designed to supplement 5824. In subsequent semesters, individual research problems pursued in laboratories of department faculty for six weeks and one credit hour each.

BIOC 6000* Research. 1-15 credits, max 60. For PhD dissertation.

BIOC 6110* Seminar. 1-2 credits, max 2 for PhD or 1 for MS candidates.

BIOC 6723* Signal Transduction. Prerequisite(s): BIOC 3023, BIOC 3653, 4113 or equivalent or consent of instructor. 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.

BIOC 6733* Functional Genomics. Prerequisite(s): 3653 or 3713 and 3813 or 5753 or consent of instructor. 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, genetomics, systems biology, forward and reverse genetics.

BIOC 6740* Physical Biochemistry. 1-2 credits, max 2. Prerequisite(s): One semester each of biochemistry, calculus and physical chemistry. 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 or as two credits or individually for one credit.

BIOC 6753* Epigenetics. Prerequisite(s): 5102 or 5753 or consent of instructor. 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.

BIOC 6763* Nucleic Acids and Protein Synthesis. Prerequisite(s): 4113 or 5753. Structure and biological function of nucleic acid containing structures with emphasis on recombiant DNA methodologies, information content, nucleic acid-protein interaction and rearrangement.

BIOC 6773* Protein Structure and Enzyme Function. Prerequisite(s): 4113 or 5753. 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.

BIOC 6783* Biomembranes and Bioenergetics. Prerequisite(s): 5853 or consent of instructor. Structure, components, organization and biosynthesis of plasma membrane, mitochondria and biosynthetic membranes, emphasizing structure-function relationships. Mechanism of metabolites, protons and electrons transport. Energy conservation in bioenergetic apparatus such as mitochondria, chloroplasts or bacterial chromatophores.

BIOC 6793* Plant Biochemistry. Prerequisite(s): 4113 or 5753. Biochemistry of processes and structures of special importance to plants, such as photosynthesis, cell walls, nitrogen fixation, secondary metabolites and storage proteins.

BIOC 6820* Selected Topics in Biochemistry. 1-3 credits, max 15. Prerequisite(s): 5853. Recent developments in biochemistry. Subject matter varies from semester to semester; students should inquire at the department office before enrolling.

Biological Science (BIOL)

BIOL 1114 (L,N) Introductory Biology. Lab 3. Introduction to the introduction 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.

BIOL 3023 General Genetics. Prerequisite(s): BOT 1404, or ZOOL 1604, or equivalent. Inheritance in plants, animals, and microorganisms; molecular and classical aspects.

BIOL 3034* General Ecology. Lab 4. Prerequisite(s): BOT 1404, or ZOOL 1604 or equivalent; MATH 1513 or 1715. Physical and biotic environment, responses of organisms to the environment, behavioral and community ecology, natural ecosystems and man's interaction with ecosystems.

BIOL 3604 Biological Principles for Teachers. Lab 2. Prerequisite(s): 1114, CHEM 1314, ZOOL 2304. Capstone course in biology for potential science teachers. Review of biological phenomena and principles as related to the curriculum.

BIOL 3933 Research Methods. Lab 2. Prerequisite(s): 1114, MATH 1613 or 2144; STAT 2013 or 4013. Students perform independent inquiries and learn to combine skills from mathematics and science to solve research problems. Students will design experiments, collect and analyze data, formulate hypotheses, justify conclusions, create mathematical models, read and evaluate the research literature, and write and present research reports. No credit for students with degree credit in MATH 3933.

BIOL 4524* Biological Laboratory Instrumentation. Lab 4. Prerequisite(s): CHEM 1515 and BOT 1404 or MCR 2123 or ZOOL 1604 or equivalents or consent of instructor. 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. No credit for students with credit in BIOL 5524. (Same course as MCR 4524.)

BIOL 5100* Current Topics in Biology for Teachers. 1-4 credits, max 4. Prerequisite(s): Approval of instructor. Acquaints the primary or secondary teacher with recent advances in biology. May include lecture, laboratory or field work.

BIOL 5524* Biological Laboratory Instrumentation. Lab 4. Prerequisite(s): CHEM 1515 and BOT 1404 or MCR 2123 or ZOOL 1604 or equivalents or consent of instructor. 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. No credit for students with credit in BIOL 4524. (Same course as MCR 5524.)

Biomedical Sciences (BIOM)

BIOM 5000* Research and Thesis. 1-6 credits, max 6, Lab 1-6. Prerequisite(s): Consent of major adviser. Research in biomedical sciences for MS degree.

BIOM 5003* Statistics for Medical Residents. Prerequisite(s): Employed as a medical resident or permission of instructor. 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.)

BIOM 5013* Biomedical Statistics. Prerequisite(s): Graduate standing. Fundamentals of biostatistics, including parametric and non-parametric statistical methods with applications to biomedical research, clinical epidemiology and clinical medicine.

BIOM 5020* Biomedical Sciences Seminar. 1-4 credits, max 4. Prerequisite(s): Graduate standing. Literature and research problems in biomedical sciences.

BIOM 5116* Clinical Anatom,y. Lab 3. Prerequisite(s): Graduate standing in the biomedical sciences program. 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.

BIOM 5124* Histology. Lab 4. Normal microscopic tissue architecture. Lecture and laboratory presentation for the histological concepts of the basic tissues and organ systems. Basis for pathological and physiological principles.

BIOM 5215* Medical Biochemistry. 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.

BIOM 5316* Medical Microbiology and Immunology. Lab 2. Prerequisite(s): 5215. 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.

BIOM 5415* General Pathology I. Prerequisite(s): Graduate standing. The reaction of the body to diseases and the description and identification of basic disease processes in terms of morphology, physiology, and chemistry. Major processes such as cell injury, cell death, healing, neoplasia, inflammation, and diseases of development and aging. Basic disease processes and ability to recognize and describe basic disease processes from gross and microscopic specimens.

BIOM 5425* General Pathology II. Prerequisite(s): Graduate standing. Continuation of General Pathology I.

BIOM 5513* Pharmacology I. Prerequisite(s): 5215, 5616. General principles of drug action, drugs acting on the autonomic nervous system, and drugs used in treating infectious diseases and cancer. The mode of action, pharmacogenetics, physiologic effects, therapeutic indications, and adverse reactions to these drugs.
BIOM 5523* Pharmacology II. Prerequisite(s): 5513. Continuation of Pharmacology I.

BIOM 5621* Introduction to Translational Research. 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.

BIOM 5631* Disease Research in Medicine. Prerequisite(s): Biomedical Foundations or equivalent. Permission of instructor. Introduction to selected diseases of priority in medicine and to funding agencies. Includes discussing current clinical and research challenges.

BIOM 5641* Cornerstones of Vertebrate Paleontology. In-depth discussion of topics in Vertebrate Paleontology, emphasizing critical thinking skills. Based on evaluation of the primary literature, and covering diverse methodological approaches to interdisciplinary research questions.

BIOM 5963* Case Studies in Medical Smart. Prerequisite(s): BIOM 4983 or DHM/IEM 4983 or consent of instructor. Designed to activate critical thinking skills needed for problem solving in wearable sensing system development. (Same course as DHM 5963).

BIOM 5984* Capstone in Medical Smart Garment Engineering. Prerequisite(s): BIOM or DHM 5963 and three credits of chosen emphasis area. 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.)


BIOM 6010* Topics in Biomedical Sciences. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Tutorials in areas of biomedical sciences not addressed in other courses.

BIOM 6013* Educational Methods in the Biomedical Sciences. Prerequisite(s): Graduate standing. Introduces graduate students to a full range of faculty roles and responsibilities related to instructional methods used at the health sciences center.

BIOM 6023* Research Methods and Design. Prerequisite(s): Graduate standing. Introduction to concepts of research design, methodology, sampling techniques, internal and external validity, and the scientific method.

BIOM 6124* Advanced Histology. Lab 4. Prerequisite(s): 5124. Histochemical techniques used in the identification of cells or tissues based on the localization of cell organelles or cell products using electron microscopy, immunofluorescence, cryosectioning and immunoperoxidase labeling.

BIOM 6175* Molecular and Cellular Biology. Prerequisite(s): Consent of course coordinator. 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.

BIOM 6183* Cellular and Molecular Biology of Pain. Prerequisite(s): 5133 or 5961. An understanding of the cellular and molecular events that occur in the initiation and transmission of nociceptive (painful) sensory signaling.

BIOM 6214* Advanced Topics in Medical Biochemistry. Prerequisite(s): 5215 or concurrent enrollment. Chemical basis of protein, carbohydrate, lipid, nucleic acid, steroid and porphyrin structure, function, and metabolism as related to health and disease.

BIOM 6233* Enzyme Analysis. Lab 2. Prerequisite(s): 6214. Characteristics, separation, detection, assays, kinetics, mechanisms of catalysis, inhibition or inactivation, and clinical applications of enzyme analysis.

BIOM 6243* Human Nutrition. Lab 2. Prerequisite(s): 5215. 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.

BIOM 6263* Techniques in Molecular Biology. Lab 4. Prerequisite(s): 5215, 5316, consent of instructor. Transformation of bacterial and mammalian cells; purification of nucleic acids; cloning of DNA fragments; labeling of nucleic acids with non-radioactive probes; analysis of DNA and RNA by electrophoresis and hybridization; DNA sequencing; design, synthesis and use of oligonucleotides; site-directed mutagenesis; detection of rare nucleic acids by the polymerase chain reaction and expression of proteins.

BIOM 6333* Immunology. Prerequisite(s): 5215, 5316. The experimental basis of immunology and immunopathology.

BIOM 6343* Microbial Physiology. Lab 2. Prerequisite(s): 5215, 5316. The chemical control of growth and metabolism of prokaryotic organisms including regulation and control of metabolic pathways with emphasis on metabolism unique to microbes.

BIOM 6353* Molecular Virology. Lab 2. Prerequisite(s): 5215, 5316, consent of instructor. The fundamental molecular biology of the virus life cycle using one virus as a model to demonstrate penetration, gene expression, replication, assembly and egress, as well as host immunological response and epidemiology.

BIOM 6363* Immunobiology of Infectious Disease. Prerequisite(s): Biochemistry, Medical Microbiology and Immunology. 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.

BIOM 6413* Graduate General Pathology. Prerequisite(s): Graduate standing and 5215; permission of the instructor is required; 5616 and 5316 are recommended. An introduction for biomedical researchers to disease processes, from etiologies to cell and tissue responses that manifest as diseases.

BIOM 6523* Cardiovascular Physiology and Pharmacology. Prerequisite(s): 5513, 5523. Physiologic and pharmacologic mechanisms of cardiac and vascular smooth muscle function and control at the molecular, cellular, tissue and organ system levels.

BIOM 6583* Neuroinflammation. Prerequisite(s): Graduate standing. Provides an understanding of inflammation in the central nervous system through discussion of current and experimental pharmacologic strategies designed to modulate neuroinflammation.

BIOM 6613* Environmental Physiology. Prerequisite(s): 5516. 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.

BIOM 6643* Neurophysiology. Prerequisite(s): 5616. Fundamental concepts of the motor and sensory components of the nervous system with emphasis on integrative mechanisms.

BIOM 6662* Research Ethics and Survival Skills for the Biomedical Sciences. Prerequisite(s): Graduate standing. Provides a basic framework for scientific conduct and practice and the skills needed for a career in the biomedical sciences.

BIOM 6663* Neurotoxicology. Prerequisite(s): Permission of instructor. 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 neurotoxicological concepts discussed.

BIOM 6673* Genomics. Prerequisite(s): 6175. 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.

BIOM 6705* Advanced Gross Anatomy. Lab 4. Prerequisite(s): Consent of course coordinator. 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.

BIOM 6713* Applications of GIS in Evolutionary Biology. This course introduces students to the applications of Geographic Information Systems (GIS) in Evolutionary Biology. The course will emphasize applications of GIS in methods associated with vertebrate 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.

BIOM 6723* Field Techniques in Vertebrate Paleontology. 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.

BIOM 6733* Microbial Pathogenesis. Prerequisite(s): 5215, 5316, consent of instructor. An in-depth introduction to the fundamental principles and molecular mechanisms by which microbes cause disease in humans. Focuses on current research and provides a comprehensive overview of the molecular basis of pathogenesis with a focus on prokaryotic and eukaryotic model microbial systems to illustrate mechanisms of disease pathogenesis. Discusses the role of the normal flora in health and disease.

BIOM 6743* Foundations in Medical Genetics, Molecular Biology and Development. Human genetics and development, including structure and function of nucleic acids, gene regulation, basis of inheritance, and development of the human embryo.

BIOM 6752* Foundations in Medical Cell and Tissue Biology. 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.

BIOM 6762* Foundations in Medical Biochemistry. Biochemistry in human health and disease, including protein structure and function, bioenergetics, metabolism, nutrition, and membrane structure and function.

BIOM 6771* Foundations in Medical Pharmacology. General principles of pharmaceutics and pharmacodynamics of drugs used to treat human disease.

BIOM 6781* Foundations in Medical Immunology. 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.
BIOM 6791* Foundations in Medical Microbiology. Infectious agents, including viruses, bacteria, fungi and parasites, their structure, genetics and mechanisms of pathogenesis in human disease.

BIOM 6802* Critical Readings in Biomedical Sciences. Provides experience with the primary literature in biomedical sciences, with training in evaluation methodologies, experimental design, data presentation, and statistical designs.

BIOM 6810* Structure and Function of the Human Cardiovascular System. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the human cardiovascular system.

BIOM 6820* Structure and Function of the Human Gastrointestinal/Hepatic System. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the human gastrointestinal and hepatic systems.

BIOM 6830* Biomedical Perspectives on Human Hematology. Prerequisite(s): BIOL 2114, BIOL 2214, or consent of instructor. Provides integrated biomedical study of the human blood and lymphatics, and associated disorders.

BIOM 6840* Structure and Function of the Human Musculoskeletal System. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the human musculoskeletal system and associated disorders.

BIOM 6850* Structure and Function of the Human Renal System. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the human renal system.

BIOM 6860* Structure and Function of the Human Reproductive Systems and Reproductive Biology. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the male and female human reproductive systems and reproductive biology.

BIOM 6870* Structure and Function of the Human Respiratory System. Prerequisite(s): Permission of Instructor. Provides integrated biomedical study of the human respiratory system.

BIOM 6880* Biomedical Perspectives on Psychiatry. Prerequisite(s): Permission of Instructor. Provides clinical and diagnostic skills in clinical practice. (Same course as PSY 6790*)

BIOM 6893* Fundamentals of Medical Smart Garment Engineering. Prerequisite(s): Graduate standing or 90+ credit hours. Students will gain an understanding of fundamental principles of garment engineering.

BIOM 6910* Structure and Function of the Human Nervous System. Provides integrated biomedical study of the human nervous system.

BIOM 6900* Structure and Function of the Human Endocrine System. Provides integrated biomedical study of the human endocrine system, and associated disorders.

BIOM 6922* Scientific Communication in Biomedical Sciences. Provides experience in scientific writing and oral presentations.

BIOM 6933* Cornerstones of Graduate Biomedical Sciences. Discussion of topics in the foundational courses of biomedical sciences, emphasizing critical thinking skills and diverse methodological approaches in understanding interdisciplinary research questions and evaluations of the primary literature. Intended to be taken concurrently with foundation courses.

BIOM 6943* Advanced Vertebrate Paleontology. Prerequisite(s): Comparative anatomy or human anatomy, and an understanding of vertebrate paleontology. (Same course as ENSC 6943*)

BIOM 6952* Paleohistology Techniques. Prerequisite(s): Undergraduate level understanding of biology, evolution, and histology. Recognizes and interprets fossil bone tissue microstructures. The contributions of paleohistology to understanding extinct vertebrate physiology will be explored through discussions of peer reviewed articles. (Same course as ENSC 6952*)

BIOM 6962* Evolutionary Biomechanics. Prerequisite(s): BIOM 5116* or HHP 2950 or ZOO 2114*. 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 models. Primary literature and experimental designs will also be explored.

**Biosystems and Agricultural Engineering (BAE)**

BAE 1012 Introduction to Biosystems Engineering. Lab 2. Prerequisite(s): Engineering major. Introduction to the Biosystems Engineering discipline, use of computers in solving engineering problems; and the application of computer software in engineering analysis and reporting.

BAE 1022 Experimental Methods in Biosystems Engineering. Lab 2. Prerequisite(s): 1012 or consent of instructor. 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.

BAE 2013 Modeling in Biosystems Engineering. Prerequisite(s): BIOL 1114 and MATH 2144. Introduction and modeling of various applications in biosystems and agricultural engineering. Case studies that emphasize the interface between engineering and biology in areas such as plant systems, industrial biological processes, sensor and control systems development, intelligent machine design, environmental remediation, water treatment systems and food processing. Use of a fourth generation programming language for solving engineering problems.

BAE 2023 Physical Properties of Biological Materials. Lab 2. Prerequisite(s): 1022, BIOL 1114, PHYS 2014. Basic engineering fundamentals applied to characterization and determination of physical properties of biological materials, including water relations, rheological, thermal, and electromagnetic properties, materials drying concepts, fans, psychrometrics and refrigeration.

BAE 3013 Heat and Mass Transfer in Biological Systems. Prerequisite(s): ENSC 3233, MATH 2233. 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.

BAE 3023 Instruments and Controls. Lab 2. Prerequisite(s): ENSC 2613, MATH 2143. 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.

BAE 3113 Biological Applications in Engineering. Prerequisite(s): 2012, BIOL 1114 and MATH 2233 or concurrent enrollment. Introduction to engineering applications of biological processes. Technologies covered include fermentation systems, enzyme kinetics, wastewater treatment and bioremediation.

BAE 3213 Energy and Power in Biosystems Engineering. Lab 2. Prerequisite(s): 1022, ENSC 2213, 2613, ENSC 2143 or concurrent enrollment. Application and design of energy generation, transmission, and utilization in the production and processing of biological materials.

BAE 3313 Natural Resources Engineering. Lab 3. Prerequisite(s): 2023, STAT 2013, and ENSC 3233 or concurrent enrollment. Principles and practices of engineering analysis and design applied to hydrology, water quality, erosion and sedimentation, air quality, irrigation and animal waste management.

BAE 4001 Professional Practice in Biosystems Engineering. Prerequisite(s): Concurrent enrollment in 4012. Preparation for professional practice through case studies about ethics, legal liability, safety, and societal issues. Practical professional communications experience.

BAE 4012 Senior Engineering Design Project I. Lab 2. Prerequisite(s): Concurrent or concurrent enrollment in 3013, 3023, 3113, 3213, 3313, MATH 2233 or concurrent enrollment. Introduction to engineering applications of biological processes. Technologies covered include fermentation systems, enzyme kinetics, wastewater treatment and bioremediation.

BAE 4023 Senior Engineering Design Project II. Lab 4. Prerequisite(s): 4012. Second of two-semester sequence of senior design courses.

BAE 4213* Precision Agriculture. Lab 2. Prerequisite(s): MATH 1513, senior standing. 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)

BAE 4224* Machinery for Production and Processing. Prerequisite(s): 3213. Analysis and design of machine components and machine systems for production and processing of biological materials. Soil dynamics with emphasis on traction and soil compaction. Interactions of machines with biological systems.

BAE 4283* Bioprocess Engineering. Prerequisite(s): 3013, 3113 or consent of instructor, ENSC 3233. 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)

BAE 4314* Hydrology. Prerequisite(s): 3013, 3313, ENSC 3233. Basic principles of surface and groundwater hydrology and their application in engineering problems. Weather and climate, evapotranspiration, precipitation, evaporation, transpiration, subsurface water, streamflow, 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.

BAE 4400 Special Problems. 1-4 credits, max 8. Investigations in specialized areas of biosystems engineering.
BAE 4413* Food Engineering. Prerequisite(s): 3013 and ENSC 3233, 2213. 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.

BAE 5000* Master’s Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of major professor. Research and thesis writing.

BAE 5030* Engineering Practice. 1-6 credits, max 15. Prerequisite(s): BS degree in biosystems agricultural engineering. The identification, analysis and synthesis of an authentic problem in agricultural and biological engineering.

BAE 5213* Renewable Energy Engineering. Prerequisite(s): ENSC 2213, ENSC 3233 or consent of instructor. Renewable technologies such as solar, wind, geothermal, hydroelectric, and biomass to generate energy for electricity, heating, transportation, and other uses.

BAE 5233* Bioseparations. Prerequisite(s): 3013 or CHE 3013. 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 in through distance learning.

BAE 5243* Biological Conversion for Advanced Biofuels. Prerequisite(s): ENSC 2213. 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.

BAE 5283* Advanced Bioprocess Engineering. Prerequisite(s): Consent of instructor. Application of fundamental and applied principles of microorganisms 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)

BAE 5313* Watershed Modeling and Water Quality. Lab 6. Prerequisite(s): 4313 or equivalent. 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 computer programs. 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.

BAE 5324* Modeling and Design in Storm Water and Sediment Control. Lab 3. Prerequisite(s): 4313 or equivalent. 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.

BAE 5333* Applied Water Resources Statistics. Lab 3. Prerequisite(s): STAT 5013 or equivalent. Frequentist and Bayesian statistical methods for hydrologists, engineers, and environmental scientists for analysis of environmental data. Parametric and nonparametric methods and exploratory data analysis applied to observed environmental data sets. Laboratory exercises emphasize hands-on application of statistical software to reinforce concepts.

BAE 5343* Environmental Contaminant Transport. Prerequisite(s): 4313. Conceptual and mathematical models for the transport of contaminants in natural systems with an emphasis on agricultural pollutants. Basic transport processes relevant to the three environmental media - air, water, and soil. Common features underlying pollutant transport in environmental systems.

BAE 5353* Environmental and Ecological Risk Assessment. Prerequisite(s): Graduate standing. 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.

BAE 5363* Life Cycle Assessment. Prerequisite(s): Graduate standing. Designing for high level of the impact assessment for products, international standards for LCA, implications of functional unit and system boundary choices on comparative LCA. Course available online only through AG*IDEA consortium.

BAE 5413* Advanced Instrumentation and Control Systems for Biological Applications. Prerequisite(s): 3023 or equivalent. 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.

BAE 5423* Food Rheology. Lab 2. Prerequisite(s): ENSC 3233. 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.

BAE 5433* Biosensors. Prerequisite(s): PHYS 2114 and CHEM 3053 or equivalent. 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.

BAE 5501* Seminar. Discussion of current literature with special emphasis on research and experimental techniques.

BAE 6000* Doctoral Research and Dissertation. 1-10 credits, max 42. Prerequisite(s): Approval by the student’s advisory committee. Research and doctoral dissertation preparation.

BAE 6101* Teaching Practicum in Biosystems Engineering. Prerequisite(s): One semester of doctoral study in Biosystems Engineering, or consent of instructor. Philosophies and techniques of resident and non-resident teaching, including experiences in preparation, presentation, and evaluation of lectures, laboratories, extension or continuing education programs.

BAE 6213* Advanced Biomass Thermochromic Conversion. Prerequisite(s): ENSC 2213. Advanced study, evaluation, and application of thermochromic conversion pathways in biofuel production. Specific topics include biomass gasification, pyrolysis, liquefaction, and heterogeneous catalysis. Course available online only through AG*IDEA consortium.

BAE 6313* Stochastic Methods in Hydrology. Prerequisite(s): CIVE 5843, STAT 4033. 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)

BAE 6333* Fluvial Hydraulics. Prerequisite(s): 3013 or equivalent. Principles of sediment detachment and transport in fluvial systems. Design of stable channels and flow resistance relationships for sediment-laden flows.


BAE 6520* Problems in Soil and Water Engineering. 2-6 credits, max 6. Prerequisite(s): Consent of instructor. Problems associated with erosion control, drainage, flood protection and irrigation.

BAE 6540* Problems in Farm Power and Machinery. 2-6 credits, max 6. Prerequisite(s): consent of instructor. Literature review and analytical studies of selected farm power and machinery problems. Written report required.

BAE 6580* Problems in Transport Processes. 2-6 credits, max 6. Prerequisite(s): Consent of instructor. Literature review and analysis of 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.

BAE 6610* Advanced Research and Study. 1-10 credits, max 20. Prerequisite(s): Approval by the student’s advisory committee. Research and study at the doctoral level on the topic related to the student’s doctoral program and field of interest.

Botany (BOT)

BOT 1404 (L) Plant Biology. Lab 2. Basic concepts in the biology of plants from the perspective of structure and function, ecology and evolution, and diversity.

BOT 3005 Field Botany. Lab 6. Prerequisite(s): BIOL 1114 or equivalent. 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. Four weekend field trips required.

BOT 3013* Biological Microtechnique. Lab 3. Prerequisite(s): 1404 or ZOOL 1604. Techniques for preparation of biological materials for microscopic examination.

BOT 3024* Plant Diversity. Lab 4. Prerequisite(s): 1404. 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 man and his environment. Field trips required.


BOT 3233* Plant Anatomy. Lab 3. Prerequisite(s): 1404. Structure of cells, tissues and organs of plants. Consideration of structure as related to ontogeny, phylogeny and function.

BOT 3253 (N) Environment and Society. Prerequisite(s): BIOL 1114 or equivalent strongly recommended. The impact of human activities and population growth on the natural world. Analysis of the potential of technological and societal changes to have an impact on the environment. For the non-biology major.

BOT 3263 (N) Plants and People. Types of plants, form and function, history of uses of plants and plant products for food and beverages, fiber, medicinal purposes, and in people’s surroundings. For the non-biology major.
BADM 4010  Business Freshman Orientation. Prerequisite(s): Freshman standing only and Spears School of Business or undeclared student. 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.

BADM 2010 Special Topics. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Special topics and independent study in business.


BADM 2093 (I) Study Abroad: Contemporary International Culture and Business Impacts. 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.

BADM 3090 (I) Study Abroad. 1-18 credits, max 36. Prerequisite(s): Consent of the Study Abroad office and associate dean of the college. Participation in an OSU reciprocal exchange program.

BADM 3101 (D) Diversity Impacts on Business. 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.

BADM 3201 Career Planning and Job Search Strategies. Develop an understanding of the importance and relevance of the entire career planning process, express professional identity, and acquire an understanding of the job market from the perspective of both a job seeker and an employer, prepare professional application materials, and analyze the advantages and disadvantages of various job search strategies.

BADM 4010 Business Projects. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Special advanced research projects and forecasting. Application to start-up business.

BADM 4050* Business Colloquium. 3-9 credits, max 9. Prerequisite(s): Junior standing and consent of the instructor and the dean. Study of an interdisciplinary and interdepartmental 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.

BADM 4090 International Proficiency Field Experience for Business. 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.

BADM 4093 (I) Study Abroad: Business Impacts of Contemporary International Culture. Prerequisite(s): Junior standing. 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.

BADM 5013* Research Methods for Business. Prerequisite(s): STAT 2023, admission to MBA program or approval from MBA director. Role of Bayesian and inferential statistics in business research and management decision-making. Measurement, scaling, 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.

Botany students are required to present a minimum of two seminars, including one on an approved research proposal and one on thesis or dissertation results.


Business Administration (BADM)

BADM 1103 (DS) Social and Behavioral Foundations of Business. Organizational management is about problem solving through modifying human behavior within a social and behavioral context. This course abstracts business concepts to provide a broad basis by which students may lay an integrated foundation for any specialized course of study. Through reading, observation, and decision-making, students enhance analysis problem and problem solving skills. Reflection and writing aid appreciation of business issues as human behavioral reaction and social interactions. May not be used for degree credit with BADM 3101.

BADM 1111 Business Freshman Orientation. Prerequisite(s): Freshman standing only and Spears School of Business or undeclared student. 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.

BADM 2182 Economics of Business. 3-4 credits, max 3. Prerequisite(s): BIOL 1114. Explores the science of allocation of limited resources, including scarcity and efficiency, consumer behavior, supply and demand, microeconomic and macroeconomic analysis. Field trips required, with fee. No credit for students with credit in 2422.

BADM 3210 Economics of Business. 3-4 credits, max 3. Prerequisite(s): BIOL 1114. Explores the science of allocation of limited resources, including scarcity and efficiency, consumer behavior, supply and demand, microeconomic and macroeconomic analysis. Field trips required, with fee. No credit for students with credit in 2422.

Botany Seminar. 1 credit, max 6. Weekly one-hour seminar series of invited and internal speakers. Botany MS and PhD Plant Sciences (Botany)
BADM 5093* Study Abroad: Applied Business Studies. 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.

BADM 5200* Selected Master of Business Administration Topics. 3-6 credits, max 6. Prerequisite(s): Admission to the MBA program. Selected topics dealing with business decision-making and contemporary business issues.

BADM 5513* Fundamentals of Business Analytics. Prerequisite(s): Graduate standing in the SSB or permission from the MBA/MSIS/STM director or assistant director, or instructor. 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.

BADM 5613* The External Environment of Business. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Social, ethical, regulatory and political forces as they impact on the organization. Attention to organizational response to these forces through management policies and strategies.

BADM 5713* Analysis of the Multinational Firm. Prerequisite(s): Admission to MBA program or consent of MBA director. Identification and analysis of the managerial, financial, and market problems facing the multinational firm. Focus is empirical and includes application of econometrics, and the study of the multidimensional nature of the international business environment.

BADM 6000* Research and Thesis. 1-9 credits, max 30. Prerequisite(s): Approval of advisory committee.

BADM 6100* Seminar in Business Administration. 3-6 credits, max 12. Prerequisite(s): Consent of instructor. Interdisciplinary in nature; focused on research methodology.

BADM 6343* Advanced Methods in MSIS Research. Prerequisite(s): Doctoral standing. 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 MSIS 6343)

BADM 6353* Advanced Methods in Management Research. Prerequisite(s): Doctoral student standing and consent of instructor. 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 MGMT 6353)

BADM 6513* Org Science I: Micro Issues in Business. Prerequisite(s): Permission from the Director of the PhD option in Executive Research. 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.

BADM 6523* Org Science II: Macro Issues in Business. Prerequisite(s): Permission from the Director of the PhD option in Executive Research. Examines topics and research in business focusing particularly on the major theories applicable to the SBU, firm level and above. Topics include theories of globalization 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.

BADM 6533* Creativity, Innovation and Leadership. Prerequisite(s): Permission from the Director of the PhD option in Executive Research. 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.

BADM 6713* Theory Building and Scientific Research in Business. Prerequisite(s): Doctoral student status and consent of instructor. Examination of theory building and research methods from a business perspective. Understanding of theory and methods relevant to research in the business disciplines.

BADM 6723* Dissertation Design. Prerequisite(s): Permission from the Director of the PhD option in Executive Research. 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.

BADM 6913 Mixed Methods in Management Research. Prerequisite(s): Permission from the Director of the PhD option in Executive Research. 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.

Business Communications (BCOM)

BCOM 3113 Written Communication. Prerequisite(s): 50 credit hours. 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 short report, as well as preparation of employment documents. (Students may not take both BCOM 3113 and BCOM 3443 for degree credit).

BCOM 3223 Oral Communication. Prerequisite(s): 3113 or 3443. 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.

BCOM 3333 Business Report Writing. Prerequisite(s): 6 hours of English. Fundamentals of writing business reports, including coverage of mechanics, content, and structure of business reports. Practice in writing business reports as well as oral presentations of reports.

BCOM 3443 Business Communication for International Students. Prerequisite(s): 50 credit hours. Analysis of business communication problems in terms of generally accepted communication principles. Practice in written messages, employment documents and presentations. 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).

BCOM 5113* Seminar in Administrative Communication. 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.

BCOM 5210* Business Communication Applications. 1-3 credits, max 3. 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.

Business Honors (BHON)


BHON 4063 Topics in Contemporary Business. Prerequisite(s): Junior standing, admission to the Honors Program. Topics of interest in the contemporary business and economic environment. The social role of the corporation; U.S. competitiveness and business and environmental issues.

BHON 4073 Literature in Business. Prerequisite(s): Junior standing, admission to the Honors Program. Foundations of American business through selected literary masterpieces.

BHON 4990 Business Honors Thesis. 1-5 credits, max 5. Prerequisite(s): Honors Program participation, senior standing, college approval. 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.

Career and Technical Education (CTED)

CTED 2000 Field Experience. 1-6 credits, max 6. Supervised work experience in student’s proposed teaching area with special emphasis on occupational skill development. Written agreement between student, employer and department must be made prior to beginning of field experience program. Graded on a pass/fail basis.

CTED 3000 Occupational Experience. 1-24 credits, max 24. Credit to be determined by a special skill competency examination.

CTED 3203 Foundations of Career and Technical Education. Opportunities provided by career and technical education through the programmatic areas of trade and industrial, marketing, business and information technology, health occupations, and technology education. The relationship of CTED to other elements of the educational system, including legislative aspects, student guidance, and programs for students with special needs.

CTED 3903 Seminar in Professional Education. Procedures for completing certification and portfolio requirements and gaining admission to Professional Education and student teaching. Documentation of field experiences, professional development opportunities, and observations of at least 45 clock hours of master teachers in various school settings.
CHE 3013  Rate Operations I. Prerequisite(s): Admission to CHE Professional School. Development and application of phenomenological and empirical models to the design and analysis of fluid processing and heat transfer unit operations.

CHE 3113  Rate Operations II. Prerequisite(s): 3013, 3333, 3473, admission to CHE Professional School. Development and application of phenomenological and empirical models to the design and analysis of mass transfer and separations unit operations.

CHE 3123  Chemical Reaction Engineering. Prerequisite(s): 3333, 3473, and admission to CHE Professional School. Principles of chemical kinetics rate concepts and data treatment. Elements of reactor design principles for homogeneous systems; introduction to heterogeneous systems.


CHE 3473  Chemical Engineering Thermodynamics. Prerequisite(s): Admission to CHE Professional School. 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.

CHE 3581  Chemical Engineering Seminar 2. Prerequisite(s): Junior standing in the department. 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.

CHE 4002* Chemical Engineering Laboratory I. Lab 6. Prerequisite(s): 3013, 3333, 3473, admission to CHE Professional School. 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.

CHE 4112* Chemical Engineering Laboratory II. Lab 6. Prerequisite(s): 3113, 3123, 4002, admission to CHE Professional School. A continuation of 4002. Primary emphasis on the 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.

CHE 4124* Chemical Engineering Design I. Lab 2. Prerequisite(s): 3113, 3123, 4002, and admission to CHE Professional School. Application of computer techniques to chemical engineering design.

CHE 4213* Safety, Organization and Management of Learning Facilities. 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.

CHE 4223* Program Planning and Development in Career and Technical Education. Planning and designing programs for the development of human resources. Program goals and objectives, curriculum, facilities, teaching-learning theories, materials development, program resources, and program and instructional evaluation.

CHE 4313 Computers and Multimedia in Career and Technology Education. Lab 2. Review of current hardware systems and software applications and their uses in career and technology education. Current and emerging issues facing career and technology educators using technology in the classroom. A wide range of Internet and multimedia tools and techniques and their functions in career and technical teaching and learning. Instructional technology usage issues and computer-based materials suitable in professional settings.

CHE 4333 (I) International Career and Technical Education. Comparison and analysis of international career and technical education.

CHE 4343* Occupational Analysis and Curriculum Development. Analysis of occupational job activities; development of course objectives, course outlines, and specific instructional materials for occupational and technical courses.

CHE 4413 Career and Technical Education Practicum I. Prerequisite(s): Successful completion of 3003; full admission to CHE Professional School. Organized teaching experiences under the guidance of a university professional educator designed to broaden and enhance the candidate’s preparation. Portfolio submission II included.

CHE 4470 Teaching Practicum in Career and Technical Education II. 1-12 credits, max 12 credits, Prerequisite(s): Full admission to Professional Education; CHE 3903 and 4113. Organized teaching experiences under the guidance and direction of a local school cooperating professional and university professional educator. Participant assigned to a cooperating teacher with responsibility for planning, implementing, and evaluating the classroom, laboratory, or shop. Portfolio submission III included.

CHE 4673* Current Issues in Career and Technical Education. 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 viewpoint.

CHE 4683* Legal Issues in Career and Technical Education. 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.

Chemical Engineering (CHE)

CHE 2033 Introduction to Chemical Process Engineering. Prerequisite(s): CHEM 1515 and ENSC 2213. Concurrent enrollment in MATH 2233 or 3263, ENGR 1412. 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.

CHE 2581 Chemical Engineering Seminar 1. Prerequisite(s): CHE majors. 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.

CHE 2010 Career and Technical Education Workshop. 1-9 credits. max 12. 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.
CHE 4990  Special Problems. 1-5 credits, max 5. Lab 3-15. Prerequisite(s): Senior standing. Training in independent work, study of relevant literature, and experimental investigation of an assigned problem.

CHE 5000  Master's Thesis. 1-6 credits, max 6. Prerequisite(s): Approval of major professor. Methods used in research and thesis writing.

CHE 5030  Professional Practice. 2-6 credits, max 8. Prerequisite(s): Senior standing and consent of instructor. 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.

CHE 5123  Advanced Chemical Reaction Engineering. Prerequisite(s): 4473. Advanced applications of chemical kinetics in catalysis, heterogeneous systems, non-ideal reactions, polymerization, and biological reactions.

CHE 5213  Selected Diffusional Unit Operations. Mass transfer in fluids. Diffusion in liquids and gases. Equilibrium stage and transfer unit concepts. Mass transfer concepts in difflusional unit operations such as absorption, adsorption, crystallization, drying, humidification and liquid extraction.

CHE 5233  Bioseparations. Prerequisite(s): BAE 3013 or CHE 3013. 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.

CHE 5263  Advanced Biomaterials Science and Engineering. Prerequisite(s): Graduate standing or consent of instructor. Engineering issues that are implicit in understanding the interactions of living tissue and processed materials will be introduced. Emphasis is on understanding the processes by 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)

CHE 5273  Basic Physiology and Physiological System Analysis for Engineers. Prerequisite(s): Graduate standing or consent of instructor. 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 techniques for analyzing 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)

CHE 5283  Advanced Bioprocess Engineering. Prerequisite(s): Consent of instructor. Application of fundamental engineering principles to biochemical and biological processes. Introduction to cellular processes, fermentation technology, biological mass transfer and kinetics, bio reactor design and scale-up, and downstream processing. (Same course as BAE 5283)

CHE 5293  Advanced Biomedical Engineering. Prerequisite(s): Consent of instructor. 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*)

CHE 5343  Advanced Environmental Engineering. Prerequisite(s): Consent of instructor. 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.

CHE 5373  Process Simulation. Prerequisite(s): 5843 or concurrent enrollment or with professor’s consent. 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.

CHE 5523  Colloid Processing. Prerequisite(s): Graduate standing in engineering, physics, or chemistry or consent of instructor. The physics and chemistry governing the behavior of microscopic particles in dilute and concentrated suspensions. Interparticle interaction influence on viscoelasticity, viscoelasticity, yield stress, and shear thinning. Practical application of colloids principles in industrial practice.


CHE 5730* Optimization Applications. Prerequisite(s): Graduate standing. 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)

CHE 5733* Neural Networks. Prerequisite(s): Graduate standing. 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)


CHE 5853* Advanced Process Control Laboratory. 2-3 credits, max 6. Lab 6-8. Prerequisite(s): Graduate standing and permission of instructor. 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 industrial realities.

CHE 5853* Advanced Chemical Process Control. Prerequisite(s): 4843 or equivalent. 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.

CHE 5873* Air Pollution Control Engineering. Causes, effects and control of air pollution. (Same course as CHEM 5873*)

CHE 5900* Special Problems. 2-4 credits, max 9. Prerequisite(s): Consent of instructor. Individual report topics in chemical engineering involving operations, processes, equipment, experiments, literature search, theory, computer use or combinations of these.

CHE 6000* Doctoral Thesis. 2-15 credits, max 54. Prerequisite(s): Consent of major professor. The doctoral candidate registers for a minimum of 2 semester credit hours to a maximum of 15 semester credit hours in each semester during which laboratory 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.

CHE 6010* Chemical Engineering Seminar. 1-3 credits, max 3. Advanced research and development topics.

CHE 6223* Advanced Chemical Engineering Thermodynamics. Prerequisite(s): 5843. Phase equilibrium in multicomponent systems. Irreversible processes. Properties of fluids and the prediction of properties by statistical methods. Application of thermodynamics to unit operations.

CHE 6440* Advanced Topics in Chemical Engineering. 3-6 credits, max 9. Topics in chemical engineering unit operations in design. Advanced mathematical techniques in chemical engineering problems. May be repeated for credit if subject matter varies.

CHE 6703* Research Methods in Chemical Engineering. Prerequisite(s): MS or PhD candidacy in chemical engineering or consent of instructor. Methods and skills required to successfully conduct chemical engineering research projects. Maintaining research records, experiment design, data validation, results presentation and research ethics.

Chemistry (CHEM)

CHEM 1014 (L,N) Chemistry in Civilization. Symbols, methods and contributions to society of the chemical sciences. Includes polymers, pollution, energy, consumer chemicals, drugs, nuclear science, and other topics. May not be used for degree credit with 1215 or 1314.

CHEM 1215 (L,N) General Chemistry. Lab 2. Prerequisite(s): MATH 0123 or high school equivalent. The beginning chemistry course recommended for science students in the applied biological sciences. May not be used for degree credit with 1014 or 1314.

CHEM 1225 (L,N) General Chemistry. Lab 2. Prerequisite(s): 1215 with a grade of “C” or higher. A continuation of general chemistry, recommended for science students in the applied biological sciences. May not be used for degree credit with 1515.

CHEM 1314 (L,N) General Chemistry. Lab 2. Prerequisite(s): MATH 1513 with a grade of “C” or better or concurrent enrollment in a higher level math course. The beginning chemistry course recommended for students in basic biological sciences (including pre-medical science and pre-veterinary science), physical sciences and engineering. May not be used for degree credit with 1014, 1215 or 1414.

CHEM 1413 (L,N) Inquiry-Based Chemistry. Lab 3. Prerequisite(s): PHYS 1313 recommended. Directed inquiry and hands on study of chemical reactions. Recommended for elementary education majors as model course to learn and teach science.
CHEM 1414 (L.N) General Chemistry for Engineers. Lab 2. Prerequisite(s): One year of high school chemistry and a "C" or higher in MATH 1513 or concurrent enrollment in a higher level math course. Survey course for engineers needing only one semester of chemistry. Thermodynamics, atomic structure, reactivity, materials, equilibrium, solids, and electrochemistry. May not be used for degree credit with 1314.  
CHEM 1515 (L.N) General Chemistry. Lab 2. Prerequisite(s): a grade of "C" or better in CHEM 1314. A continuation of general chemistry. May not be used for degree credit with 1225.  
CHEM 2113 Principles of Analytical Chemistry. Prerequisite(s): a grade of "C" or higher in CHEM 1515. Modern theories of solutions, separation techniques, and methods of analysis.  
CHEM 2122 Quantitative Analysis Laboratory. Lab 6. Prerequisite(s): 2113 or concurrent enrollment. Laboratory work related to material covered in CHEM 2113.  
CHEM 2990 Special Problems in Chemistry. 1-3 credits, max 3. Prerequisite(s): 1515 or concurrent enrollment and consent of instructor. Independent training in chemistry.  
CHEM 3013 The Chemistry of Organic Compounds. Prerequisite(s): 1215 and 1225 or equivalent. Terminal, one-semester non-majors course in organic chemistry covering the general principles of nomenclature, structures, bonding, methods of preparation, reactions and use of acyclic, cyclic, and aromatic compounds. May not be used for degree credit with 3053 or 3112.  
CHEM 3015 The Chemistry of Organic Compounds. Lab 4. Prerequisite(s): a "C" or better in 1225 or 1415 or 1515. Terminal, one-semester non-majors course in organic chemistry covering the general principles of nomenclature, structures, bonding, methods of preparation, reactions and uses of acyclic, cyclic, and aromatic compounds. May not be used for degree credit with 3053 or 3112.  
CHEM 3053 Organic Chemistry. Prerequisite(s): a "C" or higher in CHEM 1515. Hydrocarbons and their derivatives, including specific compounds of theoretical, biological or industrial importance. May not be used for degree credit with 3015.  
CHEM 3112 Organic Chemistry Laboratory. Lab 6. Prerequisite(s): 3153 or concurrent enrollment. Laboratory exercises related to theoretical principles covered in CHEM 3053 and 3153. May not be used for degree credit with 3015, 3153.  
CHEM 3153* Organic Chemistry. Prerequisite(s): A grade of "C" or higher in 3053. A continuation of 3053.  
CHEM 3353 Descriptive Inorganic Chemistry. Prerequisite(s): A grade of "C" or higher in CHEM 1515. 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.  
CHEM 3433* Physical Chemistry I. Prerequisite(s): CHEM 2113 or concurrent enrollment and a "C" or higher in MATH 2163. Introductory theoretical analysis of molecular structure, chemical bonding and macroscopic chemical systems using quantum theory, classical and statistical thermodynamics, and kinetics. Students who are not chemistry majors may receive graduate credit.  
CHEM 3532* Physico-Chemical Measurements. Lab 6. Prerequisite(s): a "C" or higher in CHEM 2122 and 3433. Apparatus, experimental methods, and calculations employed in physico-chemical investigations.  
CHEM 3553* Physical Chemistry II. Prerequisite(s): a grade of "C" or higher in 3433. A continuation of 3433. Students who are not chemistry majors may receive graduate credit.  
CHEM 4020* Modern Methods of Chemical Analysis. 1-5 credits, max 5. Prerequisite(s): a "C" or higher in 2122. Theoretical and laboratory study of modern techniques, reagents and instruments employed in analytical chemistry.  
CHEM 4320* Chemical and Spectrometric Identification of Organic Compounds. 1-3 credits, max 3. Lab 1-2. Prerequisite(s): a "C" or higher in CHEM 3112 and 3153. Theory and practice in separating mixtures of organic compounds and some theory and practice in identifying organic compounds by spectrometric methods.  
CHEM 4990* Special Problems. 1-5 credits, max 6. Lab 3-16. Prerequisite(s): Junior or senior standing and instructor permission. Training in independent work, study of relevant literature and experimental investigation of an assigned problem culminating in a written and oral report.  
CHEM 5000* Thesis. 1-6 credits, max 6. Investigations, chiefly experimental, with necessary conferences. Familiarizes the student with methods used in research in chemistry.  
CHEM 5001* Introduction to Chemistry Research. Prerequisite(s): Graduate student standing. Introduction to chemical research topics of interest to the department. Special emphasis placed on ethics, plagiarism, codes of conduct, research notebooks, publishing, and presentations.  
CHEM 5011* Graduate Seminar. Preparation and presentation of seminars usually on subject of current interest taken from the literature. Completion of 1 credit hour required for MS degree.  
CHEM 5103* Physical and Chemical Separations. Prerequisite(s): One year of physical chemistry. Principles of bulk and multi-stage separation methods: chromatography, liquid-liquid extraction, and zone melting.  
CHEM 5113* Equilibrium and Kinetics in Analytical Chemistry. Prerequisite(s): One year of physical chemistry. Physical and chemical principles of equilibrium and kinetics as applied to analytical problems.  
CHEM 5220* Modern Topics for Teachers. 1-9 credits, max 9. Prerequisite(s): Teaching experience. 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.  
CHEM 5223* Chemistry of High Polymers. Prerequisite(s): 3153 and 3433 or equivalent. Preparation and polymerization of organic monomers; properties and uses of resulting high polymers; theories of polymerization; inorganic and natural organic polymers.  
CHEM 5260* Inorganic Chemistry I. 1-3 credits, max 3. Prerequisite(s): 3353 or equivalent and 3 hours of physical chemistry. Bonding theory, molecular symmetry and structure, characterization of inorganic compounds, coordination chemistry, crystal field theory, solution chemistry, and mechanisms of inorganic reactions in solution.  
CHEM 5283* Solid-State Chemistry. Prerequisite(s): 5260. Structure, bonding, and properties of crystalline and amorphous inorganic solids. Emphasis on the characterization of inorganic solids and phase transitions in inorganic solids.  
CHEM 5373* Spectrometric Identification of Organic Compounds. Lab 3. Prerequisite(s): 4520. 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 spectoscopic instrumentation in laboratory.  
CHEM 5443* Mechanism and Structure in Organic Chemistry. Prerequisite(s): 3153 and 3553. Relationship of properties of organic compounds to their structure; mechanisms of organic reactions.  
CHEM 5563* Chemical Thermodynamics I. Prerequisite(s): 3553. Statistical and classical thermodynamics applied to chemical systems.  
CHEM 5623* Quantum Chemistry I. Prerequisite(s): 3553. Fundamentals of quantum mechanics, including classical mechanics, wave representation of matter, the Schroedinger equation, and atomic structure.  
CHEM 5960* Inorganic Chemistry II. 1-3 credits, max 3. Prerequisite(s): 5260. Chemistry of main group and transition metal organometallic compounds, metal clusters, and catalysis by organometallic polymers, bioinorganic chemistry, and materials chemistry. (Same course as 6650)  
CHEM 6000* Doctoral Dissertation Research. 1-15 credits, max 60. Prerequisite(s): MS degree in chemistry or consent of instructor. Independent investigation under the direction and supervision of a major professor.  
CHEM 6010* Research Seminar. 1 credit, max 6. Prerequisite(s): Consent of instructor. Presentations of current research. One credit hour per academic year required for MS and PhD candidates.  
CHEM 6011* Advanced Seminar. Prerequisite(s): 5011 or MS degree. 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.  
CHEM 6050* Special Topics in Analytical Chemistry. 1-6 credits, max 6. Supervised study of topics and fields not otherwise covered.  
CHEM 6103* Electroanalytical Chemistry. Prerequisite(s): 4024. The theory, practice and instrumentation in various areas of modern electroanalytical chemistry.  
CHEM 6113* Analytical Spectroscopy. Prerequisite(s): 4024. Survey of selected topics in analytical applications of spectroscopic techniques. Fundamental concepts as well as current trends in research, including instrumentation.  
CHEM 6223* Physical Polymers. Prerequisite(s): 5223 or equivalent. A study of the physical properties of macromolecular systems including polymer solutions, gels, bulk polymers, rubber. The characterization of polymers based on their thermal, spectroscopic, microstructure and molecular masses is also discussed.  
CHEM 6420* Special Topics in Organic Chemistry. 1-9 credits, max 9. Prerequisite(s): 3153. Deals with topics not covered in other courses.  
CHEM 6453* Chemical Kinetics. Prerequisite(s): 3553. The kinetics of chemical reactions and their theoretical interpretation.  
CHEM 6553* Molecular Spectroscopy. Prerequisite(s): 5623. Spectra and structure of molecules.  
CHEM 6650* Selected Topics in Advanced Physical and Inorganic Chemistry. 1-6 credits, max 12. Prerequisite(s): Consent of instructor. Supervised study of selected topics and fields not otherwise covered. (Same course as CHEM 5660)  
CHEM 6803* Photonics I: Advanced Optics. Lab 9. Prerequisite(s): ECEN 3813 or PHYS 3213, or consent of instructor. 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 ESEN 6803 & PHYS 6803)

CHEM 6810* Photons II: THz Photonics and THz-TDS. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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 ESEN 6810 & PHYS 6810)

CHEM 6820* Photons II: Spectroscopy II. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. Operating principles and applications of laser spectroscopy. Emission spectra of atomic, 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)

CHEM 6830* Photons II: Spectroscopy III. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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 photocinductivity measurements. (Same course as ESEN 6830 & PHYS 6830)

CHEM 6840* Photons III: Microscopy I. 1 credit, max 4, Lab 1. Prerequisite(s): 3553 or consent of instructor. 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 ESEN 6840 & PHYS 6840)

CHEM 6850* Photons III: Microscopy II. 1 credit, max 4, Lab 1. Prerequisite(s): 3553 or consent of instructor. 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 & PHYS 6850)

CHEM 6860* Photons III: Microscopy III and Image Processing. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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)

CHEM 6870* Photons IV: Synthesis and Devices I. 1 credit, max 4, Lab 1. Prerequisite(s): 6803 and 6840. 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 memories, coatings, lithographic patterns. (Same course as CHEM 6870 & PHYS 6870)

CHEM 6880* Photons IV: Semiconductor Devices, Testing and Characterization. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. Test and characterization of semiconductor and optoelectronic devices. Hall Effect, four point probe, CV and IV measurements, optical properties, photoluminescence and electro-optics sampling. (Same course as CHEM 6880 & PHYS 6880)

CHEM 6890* Photons IV: Semiconductor Synthesis and Devices III. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. Processing, fabrication and characterization of semiconductor optoelectronic devices in class 100/1000 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 CHEM 6890 & PHYS 6890)

Chinese (CHIN)

CHIN 1115 Elementary Chinese I. 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

CHIN 1225 Elementary Chinese II. Prerequisite(s): 1115 or equivalent proficiency. Continued study of basic grammar patterns and conversational principles, and increasing repertory of Chinese characters. Not for native speakers per University Academic Regulation 4.9

CHIN 2115 Intermediate Chinese I. Prerequisite(s): 1225 or equivalent proficiency. A continuation of 1225. 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

CHIN 2225 Intermediate Chinese II. Prerequisite(s): 2115 or equivalent proficiency. Continuation of 2115. Not for native speakers per University Academic Regulation 4.9

CHIN 3013 Chinese Conversation. Prerequisite(s): 2225 or equivalent proficiency. Development of general oral and aural proficiency.

CHIN 3133 Readings in Chinese. Prerequisite(s): 2225 or equivalent proficiency. Development of student competence in reading a wide variety of materials by contemporary Chinese writers.

CHIN 4113 Chinese Literature in Translation. Chinese literature from ancient times to the 20th century, with emphasis in major writers and movements and on cultural and political context.

Civil Engineering (CIVE)

CIVE 2041 Civil and Environmental Engineering Seminar. Prerequisite(s): Sophomore standing or department permission required. 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 be represented.

CIVE 3413 Structural Analysis. Prerequisite(s): Minimum grade of “C” in ENSC 2143. 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.

CIVE 3513 Structural Steel Design. Lab 2. Prerequisite(s): Admission to CIVE professional school required and CIVE 3413, or department permission required. Introduction to the design of structural steel members and connections in accordance with AISI specifications.

CIVE 3523 Reinforced Concrete Design. Lab 3. Prerequisite(s): Admission to CIVE professional school required and 3413, or department permission required. Introduction to the design of reinforced concrete elements in accordance with the strength design requirements of the ACI Building code.

CIVE 3614 Engineering Surveying. Lab 3. Prerequisite(s): Minimum grade of “C” required in MATH 1613 or 1715. 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.

CIVE 3623 Engineering Materials Laboratory. Lab 3. Prerequisite(s): Admission to CIVE professional school required and 3714 or concurrent enrollment, or department permission required. Basic construction materials including Portland cement concrete, asphalt concrete, aggregates, and composite materials. Behavioral characteristics, use, and quality control of these materials. Basic statistical procedures used for material specifications. Laboratory sessions provide “hands on” experience in performing standard tests.

CIVE 3633 Transportation Engineering. Prerequisite(s): Admission to CIVE professional school required and 3614, or department permission required. 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 system optimization. Application of statistical analysis and operations research to analyze transportation problems.

CIVE 3714 Introduction to Geotechnical Engineering. Lab 3. Prerequisite(s): Minimum grade of “C” in ENSC 2143, or department permission required. 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.

CIVE 3813 Environmental Engineering Science. Prerequisite(s): CHEM 1414 or 1515, MATH 2144. Engineering aspects of the life support system; the carbon-oxygen cycle; cycling of nitrogen, sulfur and phosphorus; and the hydrologic cycle. Concepts of environmental pollution and degradation. Techniques for pollution: treatment, solid waste management, and air pollution abatement. Calculation of pollution potential and treatment system parameters.

CIVE 3833 Applied Hydraulics. Prerequisite(s): Admission to CIVE professional school required and minimum grade of “C” in CHEM 1414 or 1515 and ENSC 3233 and PHYS 2014, or department permission required. 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.
CIVE 3853 Environmental Engineering Laboratory. Lab 3. Prerequisite(s): Admission to CIVE professional school required and 3813, or department permission required. Performance of experiments with benchscale environmental engineering unit operations, review of chemical principles and analytical methods important to the evaluation of plants and other environmental engineering applications. Emphasis on the development of experimental results that can be used in the design of full-scale units.

CIVE 4010* Civil Engineering Research. 1-4 credits, max 12. Prerequisite(s): Senior standing or consent of instructor. Research and investigation of civil engineering problems.

CIVE 4041 Engineering Practice. Prerequisite(s): Admission to professional school required and enrolled in last two semesters of CIVE degree, or department permission required. 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. 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 societies will be presented as well as discussions of professional ethics, income taxes, and investments.

CIVE 4403 Senior Design. Lab 3. Prerequisite(s): Admission to CIVE professional school required and enrolled in last two semesters of CIVE degree and 3513, 3523, 3713, or department permission required. Major comprehensive design experience using the team approach. Industry practitioners provide design project ideas and critique results. Emphasis extends the undergraduate experience and provides the student with opportunities to analyze and design complex structures.

CIVE 4413* Environmental Engineering Design. Lab 2. Prerequisite(s): Admission to CIVE professional school required and enrolled in last two semesters of CIVE degree and 3513, 3523, 3853, or department permission required. Factors 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.

CIVE 4273 Construction Engineering and Project Management. Lab 2. Prerequisite(s): Admission to CIVE professional school required or graduate standing. 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.

CIVE 4711 Basic Soils Testing Laboratory. Lab 3. Prerequisite(s): Non CIVE majors only, ARCH 4143 for ARCH students. Laboratory measurements of the physical and mechanical properties of soils; grain size distribution, plasticity, permeability, compaction, compressibility, and shear strength.

CIVE 4823* Human Impact on the Environment. The activities of humans and how they affect the aqueous, terrestrial, and atmospheric environment.

CIVE 4833 Unit Operations in Environmental Engineering. Prerequisite(s): Admission to CIVE professional school required and 3813 and ENSC 3233 or department permission required. 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.

CIVE 5000* Master's Thesis or Report. 1-6 credits, max 6. Prerequisite(s): Graduate standing. Admission to CIVE professional school required or department permission required. Writing a master's degree will enroll in this course for 2 credit hours if a report is to be written; 6 credits if a thesis is to be written.

CIVE 5010* Civil Engineering Seminar. 1-3 credits, max 6. Prerequisite(s): Graduate standing and approval of major professor, or undergrad in professional school. Review of literature of major fields of civil engineering.

CIVE 5013* Aquatic Chemistry. Prerequisite(s): Graduate standing or admission to CIVE professional school required and CIVE 5813 or concurrent enrollment and CHEM 1515 or equivalent, or department permission required. Application of chemical principles to environmental problems. Chemical kinetics, chemical equilibria, acid-base chemistry, development of pH-diagram, and coordination chemistry. Precipitation and dissolution reactions and oxidation-reduction reactions.

CIVE 5020* Civil Engineering Research. 1-6 credits, max 6. Prerequisite(s): Graduate standing and approval of major professor. Research and investigations other than those available for undergraduate study.

CIVE 5023* Public Health Engineering. Prerequisite(s): Graduate standing or admission to CIVE professional school required. Protection of public health through improved environment in urban, suburban, and rural communities. Practical examples, simple formulas, general rules and guidelines for application of public health principles for students in engineering, physical sciences and other technical disciplines.

CIVE 5030* Engineering Practice. 1-6 credits, max 9. Prerequisite(s): Approval of adviser. 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.

CIVE 5080* Engineering Problems. 1-3 credits, max 6. Prerequisite(s): Graduate standing. Problems of particular interest to graduate students in the field of applied science.

CIVE 5103* Construction Simulation. Prerequisite(s): Graduate standing or admission to CIVE professional school required. This course introduces students to effective ways of modeling construction processes and technologies. It involves 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 queuing 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.

CIVE 5113* Construction Business Management. Prerequisite(s): Graduate standing or admission to CIVE professional school required. Fundamentals and tools applied in 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.

CIVE 5123* The Legal and Regulatory Environment of Engineering. Prerequisite(s): Graduate standing or admission to CIVE professional school required. 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 Americans with Disabilities Act and the Construction Industry Guidelines. In-depth look at environmental policy, laws, and regulations affecting engineering, including NEPA, CWA, SDWA, CRCA, CERCLA and CAA Water Law.


CIVE 5143* Project Engineering and Management. Prerequisite(s): Graduate standing or admission to CIVE professional school required. 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.

CIVE 5153* Contract Administration. Prerequisite(s): Graduate standing or consent of instructor. Methods and techniques of tracking and control of construction projects. Evaluation of current research findings to contract implementation.

CIVE 5163* Construction Equipment Management. Prerequisite(s): Graduate standing or admission to CIVE professional school required. 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.

CIVE 5173* Concrete Formwork Design. Prerequisite(s): Graduate standing or admission to CIVE professional school required. Design of formwork for concrete structures. Analysis of loads, deflections, and stresses of forming systems. Evaluation of economics of formwork designs.

CIVE 5183* Construction Estimating. Lab 2. Prerequisite(s): Graduate standing or admission to CIVE professional school required. The construction industry, its makeup, operation, estimating, and bidding procedures. Theory and practice of estimating and the calculation of costs for various types of construction. Emphasis on preliminary cost estimates during the conceptual design phase of a construction project.

CIVE 5203* Pavement Rehabilitation, Management and Safety. Prerequisite(s): Graduate standing or senior standing with instructor approval. Undergraduate 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 consider objectives and major components of a pavement management system. Understand and explain the basic techniques of safety analysis based on pavement surface data.

CIVE 5243* Use and Design of Geosynthetics. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3714. Design of types of geosynthetics available for engineering usages. Pertinent engineering properties required to design for various functions, basic design methodology for geosynthetics for various functions, and construction and performance considerations.

CIVE 5253* Sensors and their Applications for Pavement. Prerequisite(s): Graduate standing or senior standing with instructor approval. Sensor principles of falling Weight Deflectometer (FWD), Rolling Weight Deflectometer (RWD) and Traffic Speed Deflector (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
CIVE 5273* Concrete Durability. Prerequisite(s): CIVE 5673 Concrete Mixture Design and graduate standing or permission of instructor. 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.

CIVE 5303* Systems Analysis for Civil Engineers. Prerequisite(s): Graduate standing or admission to CIVE professional school required. Synthesis of systems modeling and systems analysis tools and methodologies, optimization procedures, and evaluation tools of multi-attribute 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.

CIVE 5313* Highway Traffic Operations. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633. 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 streets.

CIVE 5343* Urban Transportation Planning. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633. Determinants of demand for transportation and models for demand forecasting. Performance characteristics of transportation systems and models for performance evaluation. Qualitative and quantitative analysis of individual 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.

CIVE 5363* Design and Planning of Airports. Prerequisite(s): Graduate standing, or admission to CIVE professional school required and 3633. 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 design. Planning requirements. Analysis of airport capacity and runway length requirements. Configuration and geometric design of runways, taxiways, holding aprons, and landing areas. Airport lighting, marking, and signing. Drainage and noise control.

CIVE 5373* Design of Traffic Control Systems. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633. 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. Design of traffic surveillance and incident detection, and motorist information systems. Preparation of contractual documents and construction supervision.

CIVE 5383* Geometric Design of Highways. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633. Geometric, functional, and aesthetic aspects of roadway design. Alignment, sight distance, at-grade intersections, interchanges, and freeway systems. Design tools and techniques.

CIVE 5403* Advanced Strength of Materials. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3413. General 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.

CIVE 5413* Classical and Matrix Methods of Structural Analysis. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3413. General 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.

CIVE 5433* Energy Methods in Applied Mechanics. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3413 and MATH 4323. Advanced structural mechanics from the standpoint of virtual work; energy principles and variational calculus applied to the analysis of structures, mechanisms, dynamics, and vibrations.

CIVE 5473* Steel Plastic Design. Prerequisite(s): Graduate standing or CIVE 3413 Structural Analysis and instructor approval. 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.

CIVE 5503* Computer-Aided Structural Analysis and Design. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3413, 3513, 3523 (or concurrent enrollment); or permission of instructor. Major comprehensive design experience. Preparation 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 drawings and calculations. Emphasis on modern computer-based computational and presentation tools.

CIVE 5513* Advanced Reinforced Concrete Design. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3523. Advanced topics in reinforced concrete design with emphasis on frames, slabs, and columns. earthquake-resistant structures.

CIVE 5523* Advanced Steel Structure Design. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3513. Advanced topics in steel design such as plastic design, plate girders, composite design, fatigue and fracture, stability, and bracing design.

CIVE 5533* Prestressed Concrete. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3523. Design of simple and continuous prestressed concrete beams. Behavior under overload. Calculation of prestress losses and deflections.

CIVE 5563* Structural Dynamics. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3523 or 3513. Design of structural timber members, assemblies, and connections in accordance with ANSI/AIAA, NDS specifications. Design, build, and test timber structure.

CIVE 5653* Asphalt Materials and Mix Design. Lab 1.5. Prerequisite(s): 3623 or consent of instructor. 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.

CIVE 5673* Concrete Materials and Mix Design. Lab 1.5. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3513, 3523 or 3513. 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.

CIVE 5693* Pavement Design and Analysis. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633 or consent of instructor. Principles of pavement design, including stress analyses, load and material characteristics, AASHO, PCA and A method of pavement design. Computer methods. Practical aspects of life cycle cost analyses and construction methods.

CIVE 5713* Soil Mechanics. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3633. Types of foundation structures including footings, mats, rafts, piles and drilled shafts. Site characteristics, exploration programs, field data, test results and construction materials; selection of type of foundation and design. Geotechnical design procedures and considerations.


CIVE 5743* Soil-Structure Interaction. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3713 and 4711. 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.

CIVE 5723* Foundation Engineering. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3713 and 4711. Types of foundation structures including footings, mats, rafts, piles and drilled shafts. Site characteristics, exploration programs, field data, test results and construction materials; selection of type of foundation and design. Geotechnical design procedures and considerations.

CIVE 5743* Soil-Structure Interaction. Prerequisite(s): 3713 and senior or graduate standing in civil engineering. The mechanical interaction effects between soils and structures. Determination of serviceability conditions 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 pile foundations.

CIVE 5753* Engineering Soil Stabilization. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3413, 3513, 3523 (or concurrent enrollment); or permission of instructor. Principles of asphalt concrete mix design including material characteristics and performance. Calculation of asphalt concrete mix design procedures. Laboratory on theoretical and practical aspects of concrete technology.

CIVE 5803* Essentials of Environmental Engineering. Prerequisite(s): CHEM 1314 or 1515; MATH 2155. Engineering aspects of the life support system; the carbon-oxygen cycle; cycling of nitrogen, sulfur and phosphorus; and the hydrological cycle. Concepts of environmental pollution and degradation. Techniques for mitigation: water and wastewater treatment, solid and hazardous waste management, and air pollution abatement. Calculation of pollution potential and treatment system parameters.

CIVE 5813* Environmental Laboratory Analysis. Lab 3. Prerequisite(s): Graduate standing or permission of instructor. 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.

**CIVE 5823** Environmental Risk Assessment and Management. Prerequisite(s): Graduate standing or permission of instructor. 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.

**CIVE 5833** Introduction to Environmental Modeling. Prerequisite(s): Graduate standing or permission of instructor. Intended as an introductory course for graduate and 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 modeling, geostatistical 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.

**CIVE 5853** Bioremediation. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3813 or permission of instructor. Process selection and design of bioremediation systems for renovation of contaminated hazardous and industrial waste sites, soils, sludge. Site analysis emphasizing contaminants and environmental characteristics. Engineering factors to promote successful bioremediation. Design project required.

**CIVE 5863** Advanced Unit Operations in Environmental Engineering. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 4833 or permission of instructor. Theory and design of advanced physical-chemical and wastewater treatment processes applied to municipal, industrial, and hazardous waste situations.

**CIVE 5873** Air Pollution Control Engineering. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 4833 or permission of instructor. Sources, effects, and control of atmospheric pollution. (Same course as CHE 5873)

**CIVE 5883** Residuals and Solid Waste Management. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 4833 or permission of instructor. Causes, effects, and control of atmospheric pollution. Theory, design and operation of systems for handling, treatment, and disposal of solid waste (water treatment, wastewater treatment, industrial solid wastes, Potentially toxic and hazardous wastes). Potential environmental impacts of waste disposal alternatives - design and evaluation of solid waste disposal facilities.

**CIVE 5913** Groundwater Hydrology. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3843 or permission of instructor. Theory of groundwater movement, storage, exploration and pumping tests. Design of groundwater recovery and recharge systems.

**CIVE 5923** Water Resources Planning and Management. Prerequisite(s): Graduate standing or admission to CIVE professional school required or permission of instructor. Application of engineering economics and microeconomic theory to the planning and management of water resources projects, including flood control, hydroelectric, water supply, and urban storm water. Systems analysis approaches, primarily linear and dynamic programming, and their application in water resources projects.

**CIVE 5933** Water Treatment. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 4833 or permission of instructor. Theory, design, and operation of water treatment plants. Sizing of various unit processes for water treatment. Plant control and instrumentation.

**CIVE 5953** Biological Waste Treatment. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 4833 or permission of instructor. Fundamentals of microbial systems applied to waste treatment processes. Standard suspended-growth and fixed biofilm wastewater and sludge suspensions and treatment system design calculations.

**CIVE 5963** Open Channel Flow. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 3833 or permission of instructor. Open channel hydraulics, energy and momentum concepts, resistance, channel controls and transitions, flow routing, and sediment transport.

**CIVE 5983** Groundwater Pollution Control. Prerequisite(s): Graduate standing or admission to CIVE professional school required or permission of instructor. Theory, design and operation of groundwater pollution control systems. Includes examples from site specific applications as well as regional or national focus.

**CIVE 5993** Environmental Data Analysis and Modeling. Prerequisite(s): Graduate standing or admission to CIVE professional school required or permission of instructor. Identification and application of various methods to analyze environmental data. Includes statistical, mathematical, and neural modeling approaches. Emphasis on application of geostatistics to spatial environmental problems; including construction modeling semivariogram, kriging, co-kriging, and indicator kriging problems. Deterministic and stochastic simulation methods addressed, including conditional and Monte Carlo simulation with discussions of the inverse problems. More conventional statistical evaluations of environmental monitoring data including trend analysis and sampling adequacy or redundancy.

**CIVE 6000** PhD Research Dissertation. 1-16 credits, max 30. Independent research under the direction of a member of the graduate faculty by students working beyond the level of Master of Science degree.

**CIVE 6010** Seminar. 1-6 credits, max. 12. Prerequisite(s): Consent of instructor and approval of the student's advisory committee. Analytical studies with suitable reports on problems in one or more of the subfields in civil engineering and environmental engineering. Prerequisites vary with the level of Master of Science degree.

**CIVE 6403** Theory of Elasticity. Prerequisite(s): Graduate standing or admission to CIVE professional school required or permission of instructor. Stress, strain, and deformation analysis of two- and three-dimensional elastic continua. Propagation of stress waves through elastic continua.

**CIVE 6413** Plate and Shell Structures. Prerequisite(s): Graduate standing or admission to CIVE professional school required and 5403 or permission of instructor. 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.

**CIVE 6434** Finite Element Analysis. Prerequisite(s): Graduate standing or permission of instructor. 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.

**CIVE 6553** Natural Hazards Engineering. Prerequisite(s): Graduate standing and 5563. 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.

**CIVE 6843** Stochastic Methods in Hydrology. Prerequisite(s): Graduate standing and STAT 4073 or 4033. Statistical and stochastic hydrologic analyses of surface water and ground water systems. Analyses of urban and rural drainage and detention systems. (Same course as BAE 6313)

**CIVE 6853** Modeling of Water Resources Systems. Prerequisite(s): Graduate standing and 5913. Application of finite-difference and finite-element methods to predict water flow and chemical and biological water quality in saturated-unsaturated ground waters, streams, lakes, urban areas, and waterways.

**CIVE 6923** Industrial Wastes Engineering. Prerequisite(s): Graduate standing or permission of instructor. 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.

**CIVE 6953** Advanced Biological Waste Treatment. Prerequisite(s): Graduate standing and 5963. Advanced biological treatment processes and new process developments. Nutrient management, anaerobic wastewater treatment, hazardous waste bioremediation, land treatment, and macrophyte systems. Use of kinetic models for system design.

**Communication Sciences and Disorders (CDIS)**

**CDIS 2033** Sign Languages. Introduction to methods of sign language currently used among the U.S. deaf society, socially and educationally, including American Sign Language (ASL), Manually Coded Language (MCL) (also known as American Sign Language Enhanced, ASL E, SEE), and fingerspelling. Linguistic components of sign and various sociological, psychological and adaptive communication issues having an impact on the deaf community. Two hours per week devoted to lecture and theory; one hour involved in a variety of interactive sign language skill work in smaller groups.

**CDIS 3123** Audiology and Audiometry. Prerequisite(s): A grade of "C" or higher in 4213. Anatomy and physiology of the hearing mechanism and related physics of sound. Common etiologies of hearing disorders. Establishing hearing screening programs. Practical experience in pure tone audiometry and impedance screening.

**CDIS 3213** Introduction to Communication Disorders. The normal development of speech, language and hearing. The characteristics, diagnosis and treatment of speech, language and hearing disorders among all age groups. Suggestions for related professions involved with people with communication disorders.


**CDIS 3313** Phonetics. 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.

**CDIS 3413** Introduction to Research. Prerequisite(s): A grade of "C" or higher in CDIS 3213, 3223, 3313, and 4213 and STAT 2013 or 2053. Introduction to

2014-2015 University Catalog
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. 

CDIS 4010 Clinic Practicum. 1-3 credits, max 3. Lab 2-6. Prerequisite(s): 4022, 4031, 4023 or 4413. Senior standing, 3.25 GPA in the major and consent of adviser. Supervised clinical practicum in speech-language pathology and audiology.

CDIS 4013 Diagnostics. Prerequisite(s): A grade of "C" or higher in 3213 and 3223. 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.

CDIS 4023 Clinical Methods and Issues. Lab 2. Prerequisite(s): A grade of "C" or higher in 3213, 3223, and 3313. Acceptance into pre-professional program. Can be taken in conjunction with CDIS 4010. Supervised practicum experiences of clinical practice, 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 two hours per week of supervised clinical practicum.

CDIS 4113 Communication Disorders in Children. Prerequisite(s): A grade of "C" or higher in 3213 and 3223. This course will address a broad range of communication disorders in children. In compliance with the standards put forth by the American Speech-Language-Hearing Association, this course will cover the nature of speech, language, and communication disorders and differences in children, including the etiologies, characteristics, psychological, developmental, linguistic, and cultural correlates.

CDIS 4133 Aural Rehabilitation. Prerequisite(s): A grade of "C" or higher in 5123 and 5133. Clinical aspects of habilitation and rehabilitation programs for the deaf and the hard-of-hearing, including speech reading, auditory training, speech perception, speech and language therapy, hearing aid orientation, and counseling. Study of amplification units including assistive listening devices.

CDIS 4213 Anatomy and Physiology of the Speech Mechanism. Prerequisite(s): A grade of "C" or higher in BIOL 1114. Structure and function of the respiratory, phonatory, articularatory, and neural systems involved in the oral communication processes.

CDIS 4253 Diagnostic Procedures in Communication Disorders. Prerequisite(s): 3224. Speech and language diagnostic testing and procedures, interpreting diagnostic information and deriving appropriate treatment plans.

CDIS 4313* Speech Science. Prerequisite(s): Acceptance into CDIS program and a grade of "C" or better in 3313, 4213 and PHYS 1014. Scientific bases of the acoustic parameters, the perceptual and productive processes of speech, and the interrelationships of those factors during speech communication.

CDIS 4423 Neural Bases of Speech and Language. Prerequisite(s): A grade of "C" or higher in 4213 and 4413. The biological mechanisms of speech and language disorders and their relationship to brain injury. The role of neuroplasticity and neural plasticity in speech and language recovery.

CDIS 4433 Communication Disorders in Adults. Prerequisite(s): A grade of "C" or higher in 4213 and 4423. A review of language disorders and changes occurring with both normal aging and common neurological diseases and traumas, with focus on the cerebrovascular accidents. Physiological bases and etiological factors of acquired speech and language disorders. Functional assessment and treatment goals. Critical analysis of current research. Design of assessment and intervention programs.

CDIS 5143* Phonological Disorders. Prerequisite(s): A grade of "C" or higher in 3313. Current issues in linguistic theories related to the assessment and treatment of phonological disorders in children. Critical analysis of current research and how to determine treatment effectiveness.

CDIS 5153* Neurological Communication Disorders. Prerequisite(s): A grade of "B" or higher in 4213 and 4423 or consent of instructor. Communication changes occurring with aging and common neurological diseases and trauma. Neuropsychological bases and etiology. Evaluation and treatment of aphasia and right hemisphere disorders.

CDIS 5163* Dysphagia. Prerequisite(s): A grade of "B" or higher in 4213 and 4423 or consent of instructor. Anatomy and neurophysiology of the swallowing mechanism in relation to pediatric and adult dysphagia. Evaluation, diagnosis and treatment of swallowing problems in children and adults including videofluoroscopic training with case studies. The first two-thirds of the course focus on adult dysphagia and the latter one third on pediatric dysphagia.


CDIS 5193* Motor Speech Disorders. Prerequisite(s): A grade of "B" or higher in 4213 and 4423 or consent of instructor. Nature, evaluation and treatment of neurologically-based motor speech disorders such as dysarthria and apraxia.

CDIS 5210* Advanced Practicum. 1-6 credits, max 15. Prerequisite(s): Consent of instructor. Practical experience for the advanced student on or off campus.

CDIS 5243* Language Disorders in School-Age and Adolescence. Prerequisite(s): A grade of "C" or higher in 4023 and 5113. Nature of spoken language disorders in school-age children and adolescents. Impact of language disorders on academic achievement. Assessment and intervention strategies.

CDIS 5333* Voice Disorders. Prerequisite(s): A grade of "B" or higher in 4313, 4213 and 4423 or consent of instructor. The physiology of the vocal mechanism and factors which cause voice deviations. Recent research on diagnostic and intervention procedures in a variety of disorders. Independent study, observations in medical settings, and special demonstrations.

CDIS 5423* Augmentative/Alternative Communication. Prerequisite(s): Major in CDIS or consent of instructor. Evaluation and management of communication disorders in individuals requiring specially adapted educational intervention programs. Adaptation, development, and delivery of augmentative and alternative communication systems.

CDIS 5433* Cleft Palate. Prerequisite(s): A grade of "B" or higher in 4213 and 4313 or consent of instructor. Recent research in the etiology, assessment and management of communicative disorders in individuals with cleft palate.

CDIS 5710* Special Topics in Communication Disorders. 1-4 credits, max 9. Prerequisite(s): Consent of instructor. Individual and group investigations of problems in communication sciences and disorders.

CDIS 5713* Fluency Disorders. Prerequisite(s): Graduate admission or consent. Current research regarding the nature of etiologies, evaluation and treatment of dysfluent speech in both children and adults.

CDIS 5720* Seminar in Communication Disorders. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Topics relevant to the evaluation and treatment of communication disorders presented on a rotating basis.

CDIS 5730* Independent Study in Communication Sciences and Disorders. 1-3 credits, max 3. Prerequisite(s): Graduate standing and consent of instructor. Directed readings or research in communication sciences and disorders.

CDIS 5760* Portfolio. 1-2 credits, max 3. Prerequisite(s): Graduate standing. Nature and preparation of professional portfolio with faculty guidance.

Computer Science (CS)

CS 1003 Computer Proficiency. For students with minimal personal computer skills. Use of Internet and productivity software such as word processing, spreadsheets, databases, and presentations. Fundamental process of searching and sorting.

CS 1103 (A) Computer Science I. Lab 2. Prerequisite(s): MATH 1513 or equivalent. Introduction to computer programming using a high-level language computer, including subprograms and arrays. Principles of problem solving, debugging, documentation, and good programming practice. Elementary concepts of searching and sorting. Not intended for computer science majors.

CS 1113 (A) Computer Science I. Lab 2. Prerequisite(s): MATH 1513 or equivalent. Introduction to computer science using a block-structured high-level
computer language, including subprograms, arrays, recursion, records, and abstract data types. GUIs, types of problems solving, debugging, documentation, and good programming practice. Elementary methods of sorting and searching. Use of operating system commands and utilities.

**CS 2133** Computer Science II. Prerequisite(s): 1113. Recursive algorithms. Intermediate methods of searching and sorting. Mathematical analysis of space and time complexity, worst case, and average case performance.

**CS 2351** UNIX Programming. Lab 2. Prerequisite(s): CS 1113 or EET 2303. The UNIX programming system. The programming environment. The UNIX file system and the shell. Use of pipes and filters.

**CS 2433** C/C++ Programming. Prerequisite(s): 1113. C/C++ programming language types, operators, expressions, control flow, functions, structures, pointers, arrays, UNIX interface. Basic object oriented programming using C++ and the related languages. Context and functions.

**CS 2570** Special Problems in Computer Science. 1-3 credits, max 6. Prerequisite(s): Consent of instructor and freshman or sophomore standing. 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 courses. Can be individual study or a class with a new subject.

**CS 3030** Industrial Practice in Computer Science. 1-6 credits, max 9. Prerequisite(s): 3443, MATH 2144, junior standing, consent of departmental adviser. Applied computing in industry. Topics vary with cooperating employers. Written reports will be specified by adviser.

**CS 3363** Organization of Programming Languages. Prerequisite(s): 2133, 3443. Computer language constructs. Roles and behavior of language constructs. Language definition structure. Control structures and data flow programming paradigms.

**CS 3443** Computer Systems. Prerequisite(s): 2133. Functional and register level description of computer systems. computer structures, addressing techniques, caches, memory, input-output operations. Introduction to file processing operations and auxiliary storage devices. Programming assignments are implemented in assembly language.

**CS 3513** Numerical Methods for Digital Computers. Prerequisite(s): MATH 2153; MATH 3013 or concurrent enrollment; or MATH 3263 and knowledge of programming. 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.

**CS 3570** Special Problems in Computer Science. 1-6 credits, max 6. Prerequisite(s): Junior standing and consent of instructor. 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.


**CS 3653** Discrete Mathematics for Computer Science. Prerequisite(s): MATH 2144. 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.

**CS 4143** Computer Graphics. Prerequisite(s): MATH 2163 and prior programming experience. 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.

**CS 4153** Mobile Applications Development. Prerequisite(s): 2133 or 2433. 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 of apps with a focus on user interface and good programming practice.

**CS 4173** Video Game Development. Prerequisite(s): 2133 and 2433 and MATH 2144. 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.

**CS 4183** Video Game Design. Prerequisite(s): 2133 and 3653. Theory and pragmatics of game design. Various types of games including games including games without 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.

**CS 4243** Algorithms and Processes in Computer Security. Prerequisite(s): CS 3443. Overview of components of computer and network security. Discussion of external processes required in secure systems, information assurance, backup, business resumption. Detailed analysis of security encryption, protocols, hashing, certification, and authentication. No credit for students with credit in CS 3243.

**CS 4273** Software Engineering. Prerequisite(s): CS 2133 and 3443 or ECE 3213. An introduction to the role of software in the 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 ECE 4273)

**CS 4283** Computer Networks. Prerequisite(s): CS 2133 and 3443 or ECE 3213, UNIX knowledge. 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 ECE 4283)

**CS 4323** Design and Implementation of Operating Systems I. Prerequisite(s): CS 2133, and CS 3443 or ECE 3213; and CS 3653 and 4343. Process abstraction and context switch block, Batch, multi-programmed, and timeshared operating system. Process management, memory management, and synchronization primitives. Deadlock prevention, avoidance, and detection.

**CS 4343** Data Structures and Algorithm Analysis I. Prerequisite(s): 2133, 3653. Storage, structures, data and information structures, list processing, trees and tree processing, graphs and graph processing, searching, and sorting.

**CS 4433** Introduction to Database Systems. Prerequisite(s): 2133. 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.

**CS 4513** Numerical Mathematics: Analysis. Prerequisite(s): MATH 2233, 3013, knowledge of programming or consent of instructor. Machine computing, algorithms, and analysis of errors applied to interpolation and approximation of functions, solving equations and systems of equations; discrete variable methods for integrals and differential equations. (Same course as MATH 4513)

**CS 4570** Special Topics in Computing. 1-3 credits, max 5. Prerequisite(s): Senior standing and consent of instructor. Advanced topics and applications of computer science. Typical topics include operating systems, multiprocessor systems, programming systems, various mathematical and statistical packages. Designed to allow students to study topics not provided in existing courses.

**CS 4793** Artificial Intelligence I. Prerequisite(s): 2133, 3653. Broad coverage of core artificial intelligence (AI) topics, including search-oriented problem solving, knowledge representation, logical inference, AI languages, history and philosophy of AI.

**CS 4883** Social Issues in Computing. Prerequisite(s): Senior standing and ENGL 3323 or BCOM 3113 or BCOM 3223. The history and evolution of computing systems, providing the background for the analysis of the social, ethical, and legal implications of computing. The social implications of computing and their systematic impact on industry and other human institutions. Social responsibilities of people involved in using or applying computers.

**CS 4993** Senior Honors Project. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. A guided reading and research project under the direction of a faculty member. All work must be done under the direction of a faculty member. A student studying for a master’s degree who elects to write a thesis may co-author a report with a second faculty reader and an oral examination. Required for graduation with departmental honors in computing and information science.

**CS 5000** Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of major professor. A student studying for a master’s degree who elects to write a thesis may co-author a report with a second faculty reader and an oral examination. Required for graduation with departmental honors in computing and information science.

**CS 5030** Professional Practice. 1-9 credits, max 9. Prerequisite(s): Graduate standing in computer science, consent of the department head. 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.

**CS 5033** Parallel Algorithms and Programming. Prerequisite(s): 4343 or consent of instructor. 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, shared-memory and distributed programming.

**CS 5070** Seminar and Special Problems. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Designed to allow students to study advanced topics not presented in existing courses.

**CS 5113** Computer Organization and Architecture. Prerequisite(s): 3443. Computer architecture, computer control, microprogrammed control, addressing structures, memory hierarchies, hardware description languages, specific architectures, hardware simulation, and emulation.

**CS 5123** Distributed Systems. Prerequisite(s): 3443 and 4343. Distributed system architectures, models, design principles, and performance evaluation metrics. Distributed programming paradigms and service-oriented architectures. Design and analysis of distributed algorithms. Grid computing, cloud computing, peer-to-peer computing, and data-intensive computing paradigms. Programming multicores and manycore systems.

**CS 5173** Video Game Production. Prerequisite(s): 4713, 4813. 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 development. Professionals from the video game industry will be invited to make presentations.

CS 5243* Algorithms and Processes in Computer Security. Prerequisite(s): 5443. Overview of the components of computer and network security. Discussion of external processes required in secure systems, information assurance, backup, business resumption. Detailed analysis of security encryption, protocols, hashing, certification, and authentication. No credit for students with credit in CS 5453.

CS 5253* Digital Computer Design. Prerequisite(s): ECEN 3223. 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)

CS 5263* Quantum Computing. Prerequisite(s): Graduating standing. 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.

CS 5273* Advanced Software Engineering. Prerequisite(s): 4273. Continuation of 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)

CS 5283* Computer Network Programming. Prerequisite(s): 4283. 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.


CS 5323* Design and Implementation of Operating Systems II. Prerequisite(s): 4323. 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.


CS 5373* Advanced Object-Oriented Programming for Windowing Environments. Prerequisite(s): For CS students, 2133, 2433. For TCOM students, CS 4343. Continuation of 4343. Working knowledge of 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. (Same course as 3373)

CS 5413* Data Structures and Algorithm Analysis II. Prerequisite(s): 4154 or 4343. Data structures and their application in recursive and iterative algorithms. Static and dynamic data structure representations and processing algorithms. Dynamic and virtual storage management.

CS 5423* Principles of Database Systems. Prerequisite(s): 4343, 4433 or equivalent with an overview of database management systems, entity-relationship model, relational model, structural query language, relational algebra, relational database design with normalization theorems, database integrity constraints, and principles of database systems with the Internet.

CS 5433* Distributed Database Systems. Prerequisite(s): 5423, 4283 or 5293. Overview of database management systems (DBMS), distributed DBMS architecture, distributed database design, overview of query processing, introduction to transaction management, distributed concurrency control, and SQL server.

CS 5513* Numerical Computation. Prerequisite(s): MATH 2233 and MATH 3013 or MATH 3283 or equivalent courses; CS 3513 or MATH 4513 or an equivalent course, a knowledge of computer programming. Errors in machine computation; condition of problems and stability of algorithms; interpolation and approximation; nonlinear equations; linear and nonlinear systems; differentiation and integration; approximation to modeling, factorization, and/or optimization.


CS 5563* Computability and Decidability. Prerequisite(s): 5313. Primitive and partial recursive functions and relations. 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.

CS 5793* Artificial Intelligence II. Prerequisite(s): 4793. Advance knowledge representation and expert system building, including reasoning under uncertainty. Applications to planning, intelligent agents, natural language processing, robotics, and machine learning.

CS 5813* Principles of Wireless Networks. Prerequisite(s): 4283 or ECEN 4283. Wireless network operations, planning, management, optimization, and modeling. Wireless and mobile 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)

CS 5823* Network Algorithmics. Prerequisite(s): 4283 and 4323. Discusses principles of efficient network implementation, router architecture, end node architecture, data copying, timer maintenance, demultiplexing, forwarding table, lookups, switching, scheduling, IP traceback.

CS 6000* Doctoral Dissertation. 2-15 credits, max 40. Prerequisite(s): 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.

CS 6210* Advanced Topics in Parallel and Distributed Systems. 2-6 credits, max 12. Prerequisite(s): 5113. 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.

CS 6240* Advanced Topics in Computer Organization. 2-6 credits, max 12. Prerequisite(s): 5113 and 5253. Structure and organization of advanced computer systems, parallel and pipeline computers, methods of computation, alignment networks, conflict-free memories, and bounds on computation time.

CS 6253* Advanced Topics in Computer Architecture. Prerequisite(s): 5253 or ECEN 5253. 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)

CS 6300* Advanced Topics in Programming Languages. 2-6 credits, max 12. Prerequisite(s): 5313. Interpreter models of programming language semantics, Vienna definition language, lambda calculus, LISP definition, Knuth semantic systems and their formulation, transductional and denotational semantics. May be repeated with change of topics.

CS 6350* Advanced Topics in Operating Systems. 2-6 credits, max 12. Prerequisite(s): 5253. 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.

CS 6400* Advanced Topics in Information Systems. 2-6 credits, max 12. Prerequisite(s): 5413, 5423. Principles of distributed database systems. Overview of relational database management systems (DBMS) and computer networks, distributed DBMS. Applying object-oriented approaches and distributed concurrency control, query processing and distributed DBMS reliability.

CS 6500* Advanced Topics in Numerical Analysis. 2-6 credits, max 12. Prerequisite(s): MATH 5513 or 4513 or MATH 4513 and consent of instructor. Solution of nonlinear equations for real and complex cases; iterative methods for large systems of linear equations, finite element methods, solution of partial differential equations. May be repeated with change of topics.

CS 6600* Advanced Topics in Analysis of Algorithms. 2-6 credits, max 12. Prerequisite(s): 5413. 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 topics.

CS 6620* Advanced Topics in Applied Algorithms. 3 credits, max 12. Prerequisite(s): 4343 or consent of instructor. Recent advances in the design and analysis of data structures for real and complex problems 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.

CS 6623* Algebraic Structures of Formal Grammars. Prerequisite(s): 5313, 5653. Context-free languages, Kleene languages, Dyck languages, context-sensitive languages; use of algebraic systems to define languages; linear bounded automata.

CS 6700* Advanced Topics in Artificial Intelligence. 2-6 credits, max 12. Prerequisite(s): 5793 or consent of instructor. Machine learning; computer perception and robotics; logic programming; natural language understanding; intelligent agents; medical informatics. May be repeated with change of topics.

CS 6800* Advanced Topics in Computing Networks. 2-12 credits, max 12. Prerequisite(s): 5283; Graduate standing in Computer Science; consent of instructor. Large scale embedded networks, deep-space networking, ubiquitous computing, optical networking, Next Generation Internet. May be repeated with change of topics.
Construction Management Technology (CMT)

CMT 1214 Introduction to Construction. Lab 2. Overview of the construction industry with emphasis on construction materials, methods, and systems.

CMT 2203 Construction Drawings (for non-majors). (Online course for non-CMT majors) Principles of graphic communication are applied to reading and drafting construction plans, with emphasis to fire protection systems. Does not meet CMT degree requirements.

CMT 2253 Construction Drawings. Principles of graphic communication are applied to reading and drafting construction plans. Techniques for measuring items of construction work from plans and specifications are also covered.

CMT 2263 Estimating I. Prerequisite(s): Grade of “C” or better in 1214 and 2253. Quantity take-off with emphasis on excavation, formwork and concrete, masonry, rough carpentry and miscellaneous specialty items.

CMT 2343 Concrete Technology. Lab 2. Prerequisite(s): Grade of “C” or better in 1214 and 2253 or permission of instructor. Fundamentals 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.

CMT 3273 Scheduling Construction Projects. Prerequisite(s): Acceptance to the CMT upper/division or permission of department; grade of “C” or better in 2263. Scheduling basics, including bar charts and critical-path methods; manual and computer techniques using current software; emphasis on using schedules for construction project management.

CMT 3331 Construction Practicum I. Prerequisite(s): Grade of “C” or better in 1214 or 2253. Supervised field experience in construction; 400 hours minimum documented time required.

CMT 3323 Strength of Materials for Construction Managers. Prerequisite(s): Acceptance to the CMT upper/division or permission of department; MATH 2123 and grade of “C” or higher in GENT 2323. Stress and strain and their relationship to loads in buildings. Axial and bending loads on beams and columns. Applications in building and construction emphasized.

CMT 3332 Construction Practicum II. Prerequisite(s): Grade of “C” or better in 2263, 3331 and GIVE 3814 or permission of department. 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.

CMT 3364 Structures I. Lab 2. Prerequisite(s): Grade of “C” or better in 2243 and GENT 3323 and acceptance to the CMT Upper Division. Methods of structural analysis applicable to construction; design of timber structures and forms for concrete structures.

CMT 3433 Principles of Site Development. Lab 2. Prerequisite(s): Grade of “C” or better in PHYS 1214 and acceptance to the CMT Upper Division. Plumbing, heating, air-conditioning, electrical and lighting systems as applied to residences and commercial buildings.

CMT 3554 Structures II. Lab 2. Prerequisite(s): Grade of “C” or better in 3364 and acceptance to the CMT Upper Division. Analysis and design of elements in steel and reinforced concrete structures; review of shop drawings for both types of construction.

CMT 3633 CAD and BIM for Construction Managers. Prerequisite(s): grade of “C” or higher in 1214 and 2253. Interpretation and production of construction drawings using computer aided drafting. Theory and use of Building Information Modeling software builds upon computer aided drafting skills.

CMT 4050 Advanced Construction Management Problems. 1-6 credits, max 6. Prerequisite(s): Junior standing and consent of instructor. Special problems in construction management.

CMT 4263 Estimating II. Prerequisite(s): Acceptance to the CMT upper division or permission of department; grade of “C” or better in 2263. Extensive use of actual contract documents for quantity take-off, pricing and assembling the bid for several projects. Use of computers in estimating.

CMT 4273 Computer Estimating. Lab 2. Prerequisite(s): Grade of “C” or better in 4263 and acceptance to the CMT Upper Division. Various software programs applied to estimating for building construction. Automated take off (Digitizer) systems.

CMT 4283 Business Practices for Construction. Prerequisite(s): Acceptance to the CMT Upper Division; grade of “C” or better in ACCT 2103, CMT 3273 and 4563 and acceptance to the CMT Upper Division. Principles of management, methods of contracting and negotiation, selection and methods of securing equipment, employees, and materials; planning and scheduling of construction contracting; organizing office and field staff; bonding, liens, financial management practices; introduction to the construction manager concept; schedule of values; construction billings.

CMT 4293 Construction Manager Concepts. Prerequisite(s): Grade of “C” or better in 3332, 4283 and 3364 and acceptance to the CMT Upper Division or permission of department. 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.

CMT 4333 Equipment Management for Constructors. Prerequisite(s): Grade of “C” or higher in 2263 and ACCT 2103 and acceptance to the CMT Upper Division or permission of department. 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.

CMT 4443 Construction Safety and Loss Control. Prerequisite(s): Must be accepted to the CMT Upper Division or obtain department permission. A detailed study of OSHA Part 1926 - Construction Safety and Health Compliance and related safety topics; all elements of the OSHA 30-hour training course; students completing the course are OSHA Certified Competent Persons; concepts and methods of loss control.

CMT 4533 Heavy and Highway Estimating. Prerequisite(s): Grade of “C” or better in 4263 and 4333 and acceptance to the CMT Upper Division or permission of department. CMT 4333 may be taken concurrently. Theory and application of contractor estimating and bidding procedures used in heavy and highway construction projects.

CMT 4563 Construction Law and Insurance. Prerequisite(s): Acceptance to the CMT Upper Division or permission of department. Legal and insurance problems as they pertain to the construction industry.

Counseling Psychology (CPSY)

CPSY 1112 World of Work. 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.

CPSY 3003 Introduction to Counseling and Related Professions. Professions related to counseling such as career counseling, school counseling, and substance abuse counseling are examined. Counseling theories and basic counseling skills are presented to prepare students for a possible graduate degree in counseling or counseling psychology.

CPSY 4443 (D) Cultural Diversity in Professional Life. Knowledge awareness and skills regarding cultural diversity in one’s professional life.

CPSY 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): 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.

CPSY 5173* Gerontological Counseling. An examination of mental health treatment modalities and approaches to counseling with older adults. An experiential component is included.

CPSY 5320* Seminar in Counseling Psychology. 3-9 credits, max 9. Prerequisite(s): Graduate standing. In-depth exploration of contemporary topics in counseling psychology.

CPSY 5413* Critical Issues in School Counseling. Counseling and guidance activities to enhance school climate and promote development of student academic, career, and personal/social competencies. Knowledge of the school counselor’s role in advocating for students with special needs.

CPSY 5453* Vocational and Career Information. Local, state and national sources of occupational information about jobs and sociological factors related to career planning and worker effectiveness.

CPSY 5473* Introduction to Counseling Practice. Prerequisite(s): Graduate standing. Orientation to counseling practice through observation and participation. The supervised experiences permit the student and the counselor education staff to evaluate the student’s strengths and weaknesses as a potential counselor or student personnel administrator.

CPSY 5483* Community Counseling and Resource Development. Prerequisite(s): Graduate standing. Application of educational, preventive, and crisis interventions in a variety of human service settings, including the development and evaluation of community helpig resources.

CPSY 5483* Professional and Ethical Issues in Counseling. Prerequisite(s): Admission to community counseling, elementary or secondary school counseling graduate program or consent of instructor. Principles and issues of professionalism and ethics. Seminar format with special emphasis on student’s thorough preparation for, and active participation in, class discussions.

CPSY 5503* Multicultural Counseling. Emphasis on effective communication skills across-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.

CPSY 5513* Comprehensive School Counseling Programs. Foundations of school counseling focusing on the knowledge and skills required to develop, implement, coordinate, and manage a comprehensive, developmental school counseling program.

CPSY 5523* Individual Appraisal. Methods of developing a framework for understanding individuals and techniques for data collection, assessment, and interpretation such as interviews, testing, and case study. The study of individual
differences including ethnic, cultural and gender factors.

CPSY 5533* Developmental Interventions. Lab 2. 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.

CPSY 5543* Career Development Theories. 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.

CPSY 5553* Principles of Counseling. A comprehensive foundation for counseling practice and the application of contemporary theories to further knowledge of counseling as a communication process.

CPSY 5563* Conceptualization and Diagnosis in Counseling. Prerequisite(s): 5473 and 5553 or consent of instructor. Foundation in skills necessary to conceptualize and diagnose clients presentation of problems in counseling. Intake interviewing and report writing skills, case conceptualization skills, and differential diagnostic skills using the DSM system.

CPSY 5583* Group Process. 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.

CPSY 5593* Counseling Practicum. Prerequisite(s): Grade of "B" or better in 5473 and 5553; admission to program or instructor consent. 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.

CPSY 5663* Counseling and Sexuality. Prerequisite(s): Permission of instructor. Current trends in counseling clients with sexual problems, as well as clients with varying sexual orientations and identities.

CPSY 5673* Substance Abuse Counseling. Prerequisite(s): Permission of instructor. Current therapeutic trends, strategies, and modalities used in the treatment of addictions, as well as relapse prevention strategies and treatment of special populations.

CPSY 5683* Internship in Counseling I. Prerequisite(s): Grade of "B" or better in 5593 and admission to counseling program. Supervised experience working and studying in a counseling agency or setting.

CPSY 5693* Internship in Counseling II. Prerequisite(s): Grade of "B" or better in 5683 and admission to counseling program. Supervised experience working and studying in a counseling agency or setting.

CPSY 5720* Workshop. 1-9 credits, max 9. Professional workshops on various topics. Designed to meet unique or special needs of professionals in various mental health fields.

CPSY 6000* Doctoral Dissertation. 1-25 credits, max 25. Prerequisite(s): Consent of advisory committee chairperson. 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.

CPSY 6053* Ethical and Legal Issues in Professional Psychology. Prerequisite(s): Consent of instructor. Ethical and legal standards applied to the professional practice of psychology.

CPSY 6083* Principles of Counseling Psychology. Prerequisite(s): Admission to the doctoral program in counseling psychology. Development, theoretical foundations and applications of therapeutic models of counseling and psychology.

CPSY 6123* Adult Personality Assessment. Prerequisite(s): Admission to counseling, school, or clinical psychology program. Administration and interpretation of adult personality assessment instruments such as Rorschach, TAT and DAP.

CPSY 6153* Personality Theories. Prerequisite(s): Graduate standing. An in-depth analysis of personality theories and personality disorders.

CPSY 6223* Beck’s Cognitive Therapy. Prerequisite(s): Grade in counseling, counseling psychology, school psychology, or clinical psychology; or consent of instructor. 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.

CPSY 6310* Advanced Practicum and Supervision. 3-12 credits, max 12. Prerequisite(s): Admission to counseling psychology program. For prospective counseling psychologists, counselor educators and supervisors, and practicing counselors. Supervised assistance in development of counseling, consulting, and supervising competencies.

CPSY 6313* Advanced Group Interventions. Lab 1. Prerequisite(s): Admission to counseling psychology program or consent of instructor. 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.

CPSY 6323* Psychological Consultation. Prerequisite(s): Admission to graduate program in the SAHEP or psychology program. 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*)

CPSY 6413* Counseling Psychology Practicum I. Prerequisite(s): Admission to the doctoral program in counseling psychology. 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.

CPSY 6423* Counseling Psychology Practicum II. Prerequisite(s): Grade of "B" or better in 6413. 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.

CPSY 6433* Counseling Psychology Practicum III. Prerequisite(s): Grade of "B" or better in 6423. 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.

CPSY 6443* Counseling Psychology Practicum IV. Prerequisite(s): Grade of "B" or better in 6433. 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.

CPSY 6543* Clinical Supervision. Prerequisite(s): Admission to clinical, counseling or school psychology doctoral program, or consent of instructor. 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.

CPSY 6553* Advanced Practice in Marital and Family Treatment. Prerequisite(s): Admission to counseling, school or clinical psychology program. 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.

CPSY 6560* Advanced Internship in Counseling. 1-3 credits, max 6. Prerequisite(s): Admission to the doctoral program in psychology. Designed to facilitate counseling effectiveness and to set the stage for a productive life of professional practice.

CPSY 6850* Directed Reading. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading for students with advanced graduate standing.

Curriculum and Instruction Education (CIED)

CIED 1230 Reading and Study Skills for College Students. 1-4 credits, max 4, Lab 1-4. Instruction and laboratory experience for the improvement of reading rate, vocabulary, comprehension, and study skills. Graded on pass-fail basis.

CIED 2450 Early Lab and Clinical Experience in Elementary Education I. 1, Lab 1-2 credits, max 2, Lab 3-6. Prerequisite(s): Declaration of intention to pursue a program in Professional Education. The initial pre-professional clinical experience in schools, kindergarten through grade eight. Required for full admission to Professional Education. Graded on a pass-fail basis.

CIED 3005 Foundations of Literacy. Lab 0-2. Prerequisite(s): ENGL 1113, 1213, 2413. 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.

CIED 3133 Children’s Literature Across the Curriculum. 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.

CIED 3153 Teaching Mathematics at the Primary Level. Lab 2. Prerequisite(s): Grade of "C" or better in MATH 3403 or 3603; six hours of math; consent of instructor. Developmental levels in selection and organization of content and instruction. Methods related to teaching speaking, written, and visual forms of communication.

CIED 3253 Teaching Language Arts in the Elementary and Middle School. Prerequisite(s): ENGL 1113 and 1213 and 2413. Learning theory, content, and methods related to teaching speaking, 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.

2014-2015 University Catalog
CIED 3293 Teaching Reading in the Elementary and Middle School. Prerequisite(s): ENGL 1113 and 2123. 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.

CIED 3313 Field Experience in the Secondary Schools. Lab 2. Prerequisite(s): Consent of instructor, 2.50 GPA, and passing scores on the Oklahoma General Education Test. 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.

CIED 3430 Early Lab and Clinical Experience in Elementary Education II. 1-2 credits, max 3, Lab 3-6. Prerequisite(s): Full admission to Professional Education. Directed observation and participation in classrooms, kindergarten through grade eight. Concurrent seminar exploring multicultural education and integrated programs. Graded on a pass-fail basis.

CIED 3622 Middle Level Education. Lab 0-2. Overview of the nature and needs of early 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.

CIED 4000 Field Studies in Education. 1-4 credits, max 4. Independent study and/or field experiences, such as spending a semester in an experimental program working with handicapped children in schools, in-depth studies and research projects, internships with school personnel. Graded on a pass-fail basis.

CIED 4003* Teaching Fundamental Concepts of Mathematics. Prerequisite(s): Full admission to Professional Education. Teaching of the basic skill areas. Study and comparison of contemporary basic mathematics textbooks. Recommended to be taken concurrently with public school practicum experiences.

CIED 4005 Literacy Assessment and Instruction. Lab 0-2. Prerequisite(s): 3605 or HDFS 3213. 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.

CIED 4012 Integration of Literacy Across the Curriculum. Prerequisite(s): 4005; full admission to Professional Education. Integration of reading, writing, and oral language; integration of literacy instruction into the content areas in elementary school curriculum.

CIED 4041 Interdisciplinary Curriculum Design and Development. Lab 2. Prerequisite(s): Full admission to Professional Education and concurrent enrollment in 3430, 4012, 4153, 4323, 4353, and 4362. 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.

CIED 4053* Teaching Geometry in the Secondary School. Prerequisite(s): Full admission to Professional Education. 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 concurrently with 3710 and MATH 4043.

CIED 4073* Elementary School Curriculum Design and Development. Prerequisite(s): Full admission to Professional Education. 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.

CIED 4093 Teaching Grammar in the Secondary Schools. Prerequisite(s): ENGL 4013 (or concurrent enrollment) or instructor permission is required. 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.

CIED 4153 Teaching Mathematics at the Intermediate Level. Lab 1. Prerequisite(s): 3153 and MATH 3403 and 3603 and full admission to Professional Education. 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.

CIED 4193 Teaching Writing in the Secondary Schools. Prerequisite(s): ENGL 1113, 1213, 3203 with “B” or better instructor permission is required. Teaching writing inductively in order to build their future students’ reasoning skills ultimately leading to cogent, cohesive, audience appropriate writing.

CIED 4213 Introduction to the Visual Arts in the Curriculum. Lab 4. 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 visual arts in the home, school and community as a vital aspect of instruction in the school. Graded on a pass-fail basis.

CIED 4233 Literacy Assessment and Instruction. Prerequisite(s): 3253. Selection, administration, and interpretation of a variety of formative 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 practice required.

CIED 4263* Teaching and Learning Foreign Languages in the Elementary Schools (Grades 1-8). Purpose, selection and organization of foreign language curricula using both indoor and outdoor settings as a multidisciplinary learning environment. Partnership in the teaching of foreign languages for grades 1-8.

CIED 4313* Young Adult Literature. Prerequisite(s): Senior or Graduate level standing. 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.

CIED 4323* Social Studies in the Elementary School Curriculum. Prerequisite(s): Full admission to Professional Education. Purposes, selection and organization of content, teaching and learning procedures, and evaluation of outcomes in elementary social studies.

CIED 4353 Science in the Elementary School Curriculum. Lab 2. Prerequisite(s): Completion of 9 hours with a grade of “C” or better in required science courses and be fully admitted to Professional Education. The purposes, selection and organization of content, teaching and learning procedures and evaluation of outcomes in elementary school science.

CIED 4362 Design and Management of the Elementary School Classroom. Prerequisite(s): Full admission to Professional Education. 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.

CIED 4450 Internship in Elementary Education. 1-12 credits, max 12, Lab 3-36. Prerequisite(s): Concurrent enrollment in 4453 or 4730 and 4720 and full admission to Professional Education. Advanced clinical experience as associate (student) teacher in schools, kindergarten through grade eight. Graded on a pass-fail basis.

CIED 4453 Senior Seminar in Elementary Education. Prerequisite(s): Concurrent enrollment in 4450 and full admission to Professional Education. 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.

CIED 4463 Senior Seminar: Learning and Teaching in Diverse School Cultures. Prerequisite(s): Senior classification; full admission to Professional Education and concurrent enrollment in 4450. Designing elementary classroom environments and curricula that meet the needs of diverse populations.

CIED 4473 Reading for the Secondary Teacher. Prerequisite(s): Full admission to Professional Education and consent of instructor. Materials and procedures in the teaching of reading in secondary schools for content area teachers.

CIED 4560* Environmental Education. 1-4 credits, max 4, Lab 1. 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 5730)

CIED 4613* Teaching the Nature of Science Through an Inquiry Approach. Prerequisite(s): Full admission to Professional Education. 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.

CIED 4713* Teaching and Learning in the Secondary School. Prerequisite(s): Full admission to Professional Education and consent of instructor. 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.

CIED 4720 Internship in the Secondary Schools. 1-12 credits, max 12, Lab 3-36. Prerequisite(s): Concurrent enrollment in 4730 or 4724 or 4734 and full admission to Professional Education. Supervision of 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.
CIED 4724  Planning and Management in the Multicultural Secondary Classroom. Prerequisite(s): 4713; full admission to Professional Education or 4003 and 4053. Taken concurrently with the student teaching internship. Includes student teaching seminar (one hour). Based on curriculum and teaching theory 4713, planning and organizing for the secondary classroom in a diverse society, grades 7-12. Classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations. Available in discipline-specialized sections: English/language arts, mathematics, science, social studies.

CIED 4730  Planning and Management in the Multicultural Art Classroom K-12. 1-4 credits, max 4. Prerequisite(s): 4713 and full admission to Professional Education. Taken concurrently with the student teaching internship. Student teaching seminar (one hour) included. Based on curriculum and teaching theory, planning and organizing for the fine art classroom in a diverse society, grades K-12. Classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations. Required for art education students.

CIED 4734  Planning and Management in the Multicultural Foreign Language Classroom K-12. Prerequisite(s): 4713 and full admission to Professional Education. Taken concurrently with the student teaching internship. Student teaching seminar (one hour) included. Based on curriculum and teaching theory, planning and organizing for the foreign language classroom in a diverse society, grades K-12. Classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations. Required for foreign language education students.

CIED 5000  Master's Report or Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of adviser. 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.

CIED 5013  Mathematics Education: Theory and Practice (Grades 1-8). Curriculum, materials, methods, and procedures related to the theory and practices of teaching mathematics in grades 1-8.

CIED 5033  Teaching Foreign Languages in the Schools K-12. Curriculum, materials, methods and procedures related to foreign languages (grades K-12).

CIED 5043  Issues in Teaching. Current issues and trends in teaching theory, practice and research with emphasis on teacher reflection.

CIED 5050  Seminar in Integrated Mathematics and Science Applications. 1-6 credits, max 6. Seminar topics may differ depending upon the nature of current interests and topics in mathematics and science education.

CIED 5053  Curriculum Issues. A study of curriculum that includes philosophy, history, decision-making, major concepts and terms.

CIED 5073  Pedagogical Research. Theory and application of pedagogical inquiry with emphasis on teacher as researcher, methodological question posing, and techniques of pedagogical inquiry, including narrative, autobiography, case writing, action research, and artifactual documentation of teacher performance.


CIED 5143  Language Arts in the Curriculum. Content and current issues in the language arts. Materials and methods for teaching the communication skills.

CIED 5153  Advanced Studies in Children’s Literature. 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.

CIED 5163  Middle School Curriculum. Theory of planning and developing learning experiences appropriate to the needs and interests of early adolescents.

CIED 5173  Kindergarten-Primary Curriculum. Study of kindergarten-primary curriculum, including philosophy, history, current practice, and issues. For administrators, teachers and students in curriculum and early childhood education.

CIED 5183  Media Literacy Across the Curriculum. 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.

CIED 5193  Inquiry and Problem-Based Learning in Science Education. Prerequisite(s): Completion of Bachelor’s degree. Different aspects of teaching science through inquiry. Using research-based instructional 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.

CIED 5203  Foundations of Literacy Education 1-8. Major literacy theories, content, and pedagogy with a required 45 hour field experience. For graduate students seeking teacher certification in elementary education.

CIED 5223  Teaching Science in the Schools. Materials, methods and classroom procedures related to science in grades K-12.

CIED 5243  Environmental Education in the Curriculum. Integration of environmental concepts in the total school curriculum. Review of K-12 environmental education curricula and methods of teaching environmental education in formal and nonformal settings.

CIED 5253  Rational Number Concepts, Proportional Reasoning, and Classroom Interactions at the Elementary Level (PK-6). Prerequisite(s): completion of a Bachelor’s degree. Focus on teaching rational number concepts and developing proportional reasoning skills for PK-6 classrooms; attention is also given to learning methods which facilitate appropriate classroom interactions.

CIED 5263  Assessment and Evaluation in School Mathematics. Lab 2. Focus on curriculum assessment to help teachers identify what students know about critical mathematical concepts, skills, procedures, and facts. Emphasis would be on using that information to inform their instructional decisions and enhance student learning.

CIED 5270  Practicum in School Mathematics. 1-3 credits, max 6. Lab 2-6. 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.

CIED 5273  Number Concepts and Assessment at the Elementary Level (PK-6). 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.

CIED 5280  Workshop in Science Education. 1-4 credits, max 4. Develops and implements elementary science and secondary science programs.

CIED 5283  Problem-Centered Learning in Mathematics. Focus on the different aspects of a problem-centered learning environment. Using current research as a guide, students will examine tasks, collaborative work, and the roles of students, teachers and discourse.

CIED 5293  Teaching and Learning Mathematics in Technology. The focus of this course is on inquiry-based 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 emphasized as they relate to the technical aspects of providing a technology learning environment conducive to student construction of mathematical knowledge.

CIED 5313  Curriculum of the Elementary School. Contemporary trends, philosophies and points of view in elementary school education.

CIED 5323  Teaching Social Studies in the Schools. Curriculum, materials, methods, and procedures related to social studies.

CIED 5350  The Visual Arts in the Curriculum. 1-3 credits, max 6. Lab 2. Course 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.

CIED 5353  Literature for Children, Adolescents and Adults. 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.

CIED 5423  Literacy Instruction in Primary Grades. Analysis of growth in literacy from the preschool level through early elementary years. Examination of reading, learning processes and instructional procedures.

CIED 5433  Reading and Writing in the Content Areas. Study of the development and use of reading and writing across the content areas.

CIED 5463  Reading Assessment and Instruction, Lab 0-2. Prerequisite(s): 5423 or 5433 or consent of instructor. Development of knowledge of reading assessment and instruction for children and adults who find reading difficult. Laboratory experience for authentic assessment and tutoring in reading.

CIED 5473  Reading and Writing Difficulties. Study of research and formal assessment tools related to reading and writing difficulties in children and adults.

CIED 5483  Literacy and Technology Across the Curriculum. The characteristics of computer-facilitated learning relating to broad definitions of literacy. Use of a variety of computer and literacy tools across the curriculum.

CIED 5523  Practicum in Reading Instruction, Lab 0-2. Evaluation and instruction in reading and writing for children who experience difficulty learning to read. Collaboration among teachers, learners, and resource personnel.

CIED 5553  Literacy Leadership and Coaching. Prerequisite(s): 5463. Develops skills and knowledge for school literacy program design and leadership, and for coaching other teaching professionals in literacy teaching.

CIED 5613  Effective Teaching of Mathematics in the Secondary School. Prerequisite(s): Consent of instructor. 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 school administrators.

CIED 5623  Multicultural and Diversity Issues in Curriculum. 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
ethnicty 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.

CIED 5640* Special Topics in Literacy Education. 1-6 credits, max 6. Topics vary to address special topics in literacy education.

CIED 5643* Integrating Teaching at the Elementary Level. 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.

CIED 5663* Integrating Teaching in the Secondary School. 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.

CIED 5720 Education Workshop. 1-8 credits, max 8. 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.


CIED 5730* Seminar in Education. 1-6 credits, max 6. Seminar topics may differ depending upon the nature of current interests and topics in American education. (Same course as 4560)*

CIED 5733* History of Reading. Prerequisite(s): Graduate standing with the Graduate College. This course provides an examination of the historical landscape of reading education paradigm, 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, sociocultural, etc.), will also be examined.

CIED 5750 Seminar in Mathematics Education. 1-6 credits, max 6, Lab 0-6. Prerequisite(s): Consent of instructor. Problems, issues and trends in mathematics education.

CIED 5813* Educational Advocacy and Leadership. 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.

CIED 5850* Directed Study. 1-6 credits, max 6, Lab 1-6. Prerequisite(s): Consent of instructor. Directed study for master's level students.

CIED 5913* Geometry, Spatial Visualization, and Learning Trajectories at the Elementary Level (PK-6). Prerequisite(s): Completion of a Bachelor's degree. Focus on geometric concept development at the PK-6 level and an understanding of spatial visualization. Attention will be given to the understanding of learning trajectories for elementary grades mathematics learning.

CIED 5923* Algebra and Mathematical Tasks at the Elementary Level (PK-6) Prerequisite(s): Completion of a Bachelor's degree. Focus on early 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.

CIED 5933* Teaching Measurement and Data at the Elementary Level (PK-6) Prerequisite(s): Completion of a Bachelor's degree. Focus on statistical literacy of elementary teachers and the teaching of data analysis and measurement to PK-6 students; emphasis on the use of instructional technology to enhance student learning.

CIED 5943* Mathematics Leadership and Coaching Prerequisite(s): Completion of a Bachelor's degree and 12 hours from CIED 5253, 5273, 5913, 5923, and 5933. Develops skills and knowledge for school mathematics program design and leadership, and for coaching other teaching professionals in mathematics teaching.


CIED 6013* Assessment in Science Education. Prerequisite(s): Completion of a bachelor's degree. Guided readings, discussions, and group activities focus on strengthening students' understanding of state and national assessments in science education.

CIED 6030* Contemporary Issues in Curriculum Studies. 1-6 credits, max 6. Examination of selected contemporary topics in curriculum studies.

CIED 6033* Analysis of Teaching. 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.

CIED 6043* Curriculum Leadership. 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.


CIED 6060* Advanced Special Topics in Literacy Education. 1-6 credits, max 6. Topics vary to address special topics in literacy education at the doctoral level.

CIED 6063* Curriculum History. 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 give to primary sources and the position of curriculum thinking within evolving educational thinking.

CIED 6070* Seminar in Arts and Humanities Education. Prerequisite(s): graduate standing or instructor permission is required. 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.

CIED 6073* Advanced Pedagogical Research. 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.

CIED 6083* Seminar in Writing Pedagogy. Prerequisite(s): Graduate standing with Graduate College. 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. The course relies on reading, discussion, synthesis of key concepts, and individual inquiry as central learning processes.

CIED 6090* Readings in Arts and Humanities Education. Prerequisite(s): graduate standing or instructor permission is required. In-depth readings specific to research and theorizing in arts and humanities education. Focusing on analysis, students examine primary texts and related secondary texts.

CIED 6123* Teaching the Nature of Science in Secondary Science Education. Prerequisite(s): Successful completion of a bachelor's degree. Guided readings, discussions, and group activities focus on strengthening views on the nature of science.

CIED 6133* Theory to Practice in Education. A culminating seminar demonstrating the application of theory from several disciplines to the practical problems of education: curriculum development, organization, teaching, research, and curriculum evaluation.

CIED 6143* School Reform. 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.

CIED 6163* Advanced Research Strategies in Curriculum. Prerequisite(s): SCDF 6113. 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.

CIED 6183* Advanced Media Literacy Across the Curriculum. This course explores the interdisciplinary nature 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.

CIED 6223* Instruction and Learning in Science and Mathematics Education. Prerequisite(s): Acceptance into a doctoral program. 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.

CIED 6253* Designing and Conducting Mixed Methods Research. Prerequisite(s): REMS 5953 (or equivalent) and SCDF 5913 (or equivalent); admittance to a doctoral level program. Participants will examine the history, philosophical foundations, and methodological issues of mixed methods research.

CIED 6433* Seminar in Literacy. Research of issues in literacy education using knowledge gained through both research and classroom practice.

CIED 6503* Doctoral Seminar. 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; applications for and techniques in higher education. Primarily for students in the PhD program in Curriculum Studies and Professional Education Studies.

CIED 6513* Staff Development in Literacy Education. Design and delivery of research related to staff development experiences in literacy.

CIED 6683* Language, Literacy, and Culture. The social-cultural perspectives related to the role of language in mediating literate behaviors, cognition and action across various contexts. Analysis of the impact of language use in various learning contexts (situated cognition) and its academic, technical and everyday discourse in understanding the interrelationships among teaching, learning, knowledge and culture.
CIED 6750* Research in Mathematics and Science Education. 1-6 credits, max 6. The examination of current research in mathematics and science learning and teaching research designs, employed, and the generation of new hypotheses.

CIED 6850* Directed Reading. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading for students with advanced graduate standing to enhance students understanding in areas where they wish additional knowledge.

CIED 6853* Improvement of Instruction in Reading. Problems and issues related to reading instruction. The roles of various school personnel in changing curriculum and methods.

CIED 6880* Internship in Education. 1-8 credits, max 8, Lab 3-24, Prerequisite(s): Consent of instructor. Directed off-campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program.

CIED 6910* Practicum. 1-6 credits, max 6. Prerequisite(s): Consent of adviser. Helps the student carry out an acceptable research problem (practicum) in his/her local school situation. Credit given upon completion of the written report.

**Design, Housing and Merchandising (DHM)**

DHM 1003 Design Theory and Processes for Design and Merchandising. Lab 4. Prerequisite(s): DHM majors only. Design elements, principles and processes applied to design and merchandising.

DHM 1103 Basic Apparel Assembly. Lab 4. 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 overlock.

DHM 1123 Graphics for Interior Design I. Lab 4. Prerequisite(s): DHM majors only. Drafting and visual communication techniques related to interiors.

DHM 1433 Innovation and Marketing of Fashion Products. The process of fashion innovation; variables of fashion affecting production and distribution of consumer goods; development of present structure in the apparel, interiors and related industries.

DHM 1993 Communications and Presentation Techniques for Apparel Design. Lab 6. Prerequisite(s): 1003. Creative communication methods and techniques, including a variety of media for two- and three-dimensional presentations in apparel design.

DHM 2003 Problem Solving Strategies. Participatory problem solving in design and merchandising; critique of proposed solutions as a positive process of evaluation.

DHM 2073 Computer-Aided Design for Interior Design. Lab 4. Prerequisite(s): 1123 and pass proficiency review. Computer-aided design and drafting for two-dimensional and three-dimensional interior systems.

DHM 2103 Interior Design Studio I: Residential. Lab 4. Prerequisite(s): Pass proficiency review. Studio course utilizing the design process in the analysis and planning of residential environments using computer-aided and hand drafting techniques.


DHM 2212 Heritage of Dress I. Prerequisite(s): 3 credit hours of history. Survey of ancient to Baroque European modes of dress, as that clothing reflects the environment and cultural life of a people.

DHM 2233 Graphics for Interior Design II. Lab 4. Prerequisite(s): 1123. 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.

DHM 2263 Interior Design Studio II: Small Scale Contract. Lab 4. Prerequisite(s): 2073 and 2103. 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.

DHM 2301 Supervised Field Experience. Prerequisite(s): 2263 or consent of instructor. Field experience in specialized residential, commercial and institutional design with both historic and contemporary elements.

DHM 2403 Research Methods. Prerequisite(s): Math 1483 or 1523. Quantitative and qualitative 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.

DHM 2423 Technology and Visual Communication for Merchandisers. Lab 4. Prerequisite(s): 1003 and 1433. The development of visual communication skills for marketing, promotional, and merchandising applications as well as personal branding utilizing industry-relevant technological practice.

DHM 2444 Draping. Lab 6. Prerequisite(s): DHM 2203 with “C” or higher and pass proficiency review. Interpretation of garment design developed through the medium of draping on dress forms.

DHM 2573 (L,N) Textiles. Lab 2. 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.


DHM 3013 Flat Pattern Design. Lab 6. Prerequisite(s): 2444 and pass proficiency review and MATH 1483 or 1513. Interpretation of dress design developed through the medium of flat pattern; introduction to pattern drafting.

DHM 3203 Computer-Aided Flat Pattern Design. Lab 6. Prerequisite(s): 3013 and pass proficiency review. Advanced apparel design problems using flat pattern and computer-aided design (CAD) techniques.

DHM 3303 Material Culture. Prerequisite(s): completion of 30 credit hours. An exploration of a variety of theoretical approaches toward understanding what objects mean. Psychological, sociological, economic, and other approaches are examined using culture theory as a foundation.

DHM 3503 Quality Analysis for Apparel Design. Prerequisite(s): DHM majors only and 1433, 2203, 2573 or consent of instructor. Evaluation of product quality relating to target market, materials, and construction.

DHM 3303 Anthropometry and Ergonomics in Design. Prerequisite(s): DHM 2403. Methods and principles for representing body size, fit, accommodation, proportions, ease and product specific functionality to apparel, merchandising and built environment design.

DHM 3123 Advanced Technology for Apparel Design. Lab 4. Prerequisite(s): DHM majors only and 1993 and 3023. Building on CAD skills used as applied to apparel design and production. Development of technical packages and specification materials.

DHM 3203 Functional Clothing Design. Prerequisite(s): 2573, 3013, 4 credit hours of chemistry. Problem solving approach to functional clothing design for specialized market segments (athletic, sportswear, clothing for the handicapped) including performance evaluation of selected materials using standard methods of textile testing.

DHM 3213 (H) Heritage of Dress II. Prerequisite(s): 3 credit hours of history. 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.

DHM 3233 (H) Heritage of Interior Design I. 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.

DHM 3303 Materials and Finishes for Interior Design. Prerequisite(s): 2263 (Interior Design students) or 1123 and 2573 (Merchandising students). An overview and examination of interior materials and finishes.

DHM 3343 Interior Design Studio III: Interior Components and Construction Documents. Lab 4. Prerequisite(s): 2263. 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.

DHM 3433 Retailing of Apparel, Interiors and Related Products. Prerequisite(s): DHM majors or minors only, or by permission of instructor, and 1433 and ACCT 2103 with minimum grade of “C”, and ECON 1113 or 2103. Marketing strategies at retail level; job descriptions and responsibilities at management level; financial and control functions.

DHM 3453 Interior Design Studio IV: Environmental Design. Lab 4. Prerequisite(s): 3343. 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.

DHM 3553 Textile Surface Design. Lab 4. Prerequisite(s): DHM 1003 and 2573. 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.

DHM 3553 Profitable Merchandising Analysis. Prerequisite(s): 3433, ACCT 2103, MATH 1483, 1513 or 2103. 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, financial development of a four-month buying plan.

DHM 3563 Merchandise Acquisition and Allocation. Prerequisite(s): 3433, 3553. In-depth study of buying and distributing merchandise.
DHM 3463 Apparel and Accessories for Special Markets. Prerequisite(s): 1433, PSYC 1113, and completion of 60 credit hours. An analysis of the apparel and accessory needs of specialized market segments and the products designed to meet those needs, with consideration given to both product design and merchandising.

DHM 3632 Professional Practices for Interior Design. Prerequisite(s): 2263. Specific terminology, procedures, relationships and ethics pertaining to the organization and conduct of interior design practice in the United States.

DHM 3853 Visual Merchandising. Lab 2. Prerequisite(s): 1003, 1433, 2423 and completion of 60 credit hours. Study and application of principles and practices in merchandise presentation for commercial purposes.

DHM 3881 Interior Design Pre-Internship Seminar. Prerequisite(s): DHM majors only, 3023, 3363 and 3853 (or apparel design and merchandising students) 3023 or 3123 or HS 1112 or 3112 (or concurrent). Preparation for obtaining and completing a directed practical experience in an approved work situation in the interior design field.

DHM 3991 Pre-Internship Seminar. Prerequisite(s): DHM majors and 2.5 major GPA and 1003 and 2003 and 2573 and HS 1112 or HS 3112 (or concurrent) and (merchandising students) 3433 or (ADP students) 3123. Skills requisite to a directed practical experience in an approved work situation related to the fashion industry.

DHM 3994 Professional Internship in Merchandising or Apparel Design and Production. Prerequisite(s): DHM majors only and 3991 and (merchandising students) 3363 and 3853 (or apparel design and merchandising students) 3023 and 3123, and HS 1112 or 3112. Directed practical experience in an approved work situation related to the fashion industry.

DHM 4001 Design and Merchandising Speakers Colloquium. Seminars presented by distinguished industry professionals. Current issues and implications for the design and merchandising fields.

DHM 4011 Post-Internship Seminar. Prerequisite(s): DHM majors only 3994. Study and comparison of student work experiences. Individual student conferences, review of merchant supervisor reactions.

DHM 4143* Design for Special Needs. Problems and alternative solutions for apparel and interiors for special groups, e.g., the aging, children, the handicapped, special markets. Includes field study or design problem.

DHM 4153 Mass Production of Apparel and Related Products. Lab 4. Prerequisite(s): DHM majors only and 3023 and 3123. Understanding and applying mass production strategies for apparel related products. Includes design for production, production operations including CAD marker making and material utilization, production simulation, modeling and costing.

DHM 4163 Housing in Other Cultures. Housing and interior design and expressions of cultural beliefs, attitudes, family patterns and environmental influences.

DHM 4264* Interior Design Studio V: Large Scale Commercial. Lab 6. Prerequisite(s): 3453, 4373, and 4624. Analysis of large scale office planning and institution design including systems and specifications and emphasizing computer-aided design techniques for construction documents and presentations.

DHM 4294* Interior Design Studio VI - Capstone. Lab 6. Prerequisite(s): 4264. Studio course utilizing the design process in the analysis and planning of hospitality design and institutional design such as health care and education. Approaches includes the consideration of the impact on facility management.

DHM 4323 (I) Heritage of Interior Design II. 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.

DHM 4373* Advanced Computer-Aided Design for Interior Design. Lab 4. Prerequisite(s): 2073 and 3453. Advanced computer-aided design and visualization for three-dimensional interior systems.

DHM 4403* Advanced Apparel Design. Lab 6. Prerequisite(s): 2444 and 3023. Application of design and pattern-making principles and apparel assembly processes in the development of original designs.

DHM 4423* Heritage III: Designing for Progress. A thematic survey of movements affecting design of the built environment after 1900. Social and political developments as generators of new building types, construction techniques, materials and stylistic directions.

DHM 4433* Facility Management and Design. Survey of nine competency areas of facility management and design, ensuring functionality of the built environment by integrating people, places, processes and technology.

DHM 4453* Entrepreneurship and Product Development for Apparel and Interiors. Prerequisite(s): ECON 1113 or 2103 and completion of 90 credit hours. In-depth study of entrepreneurship concepts as applied to manufacturers and retailers of apparel and interior products including product development, accounting for retail and wholesale merchandising and buying, operation and management, advertising and promotion.

DHM 4503* Couture Techniques. Lab 4. Prerequisite(s): 2443. Advanced clothing construction techniques using couture methods.

DHM 4523 Critical Issues in Design and Merchandising. Prerequisite(s): Senior standing in major. Capstone course examining professional issues in design and merchandising in the context of central themes from general education.

DHM 4533 (D) Diversity Issues in Facility Management and Design. In-depth study of facility management and design issues focused on diversity in a variety of workplace types including: office, retail stores, hotels, restaurants, government, educational and cultural institutions.

DHM 4573* Sustainable Design for Apparel and Interiors. Prerequisite(s): CHEM 1014 or equivalent, and DHM 2573, 3633 and completed 90 hours. Non-DHM majors: no prerequisite. 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.

DHM 4810* Problems in Design, Housing and Merchandising. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Selected areas of study in design, housing and merchandising.

DHM 4824 Professional Internship in Interior Design. Prerequisite(s): DHM majors only, 3453, 3881, 4373. A supervised internship experience that simulates the responsibilities and duties of a practicing professional in interior design.

DHM 4850* Special Unit Course in Design, Housing and Merchandising. 1-6 credits, max 6. In-depth study of specific areas of design, housing and merchandising.

DHM 4893* Fundamentals of Medical Smart Garment. Prerequisite(s): completion of 90 credit hours or Graduate standing. 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 systems. May not be used for degree credit with BIOM 6933, IEM 4893 or IEM 5893.

DHM 4900 Honors Creative Component. 1-3 credits, max 3. Prerequisite(s): Completion of Honors Human Sciences Research Program participation, senior standing. Guided creative component for students completing requirements for College Honors in the 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.

DHM 4993 Textiles, Apparel, Interiors and Related Products in the International Economy. Prerequisite(s): 2 credits of ECON and 90 credit hours. Broad multi-disciplinary study of textiles, apparel, interiors and related products in the international economy.

DHM 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Graduate standing and consent of major professor. Research related directly to design, housing and merchandising for the master’s thesis.

DHM 5001* Orientation to Graduate Studies in Design, Housing and Merchandising. Process of developing a graduate plan of study in the Department of Design, Housing and Merchandising. Fundamental skills needed for successful completion of a DHM graduate degree.

DHM 5003* Theoretical Perspectives for Design, Housing and Merchandising. Prerequisite(s): 5013. A study of terminologies associated with exploration of the architecture, 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Selected areas of study in design, housing and merchandising.

DHM 5012* Research Planning and Proposal Writing. Prerequisite(s): 5001, 5013. Fundamentals of planning and completing qualitative and quantitative research projects, including writing the proposal.

DHM 5013* Theories of Creative Process in Design and Merchandising. A study of the creative processes in design and merchandising and the creative process in the apparel and interior design industries. Lab 2. Prerequisite(s): 5013. An overview of product design and production techniques for apparel and interior design markets using an industry approach. Promotional strategies needed for successful advertising campaigns.

DHM 5233* Design Evaluation. Prerequisite(s): Consent of instructor. Theoretical perspectives on evaluation of applied design, examination and evaluation of historic and contemporary designers, their philosophies and their work.

DHM 5240* Master’s Creative Component. 1-6 credits, max 6. Prerequisite(s): Consent of major professor and department head. 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.

DHM 5273* Interpretative Theories of Material Culture. A theoretical analysis of the influences of cultural values and characteristics upon the design, acquisition and use of apparel, furnishing and building products, and the cultural diffusion of those material goods.

DHM 5303* Sociological, Psychological and Economic Aspects of Consumer Behavior. 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.

DHM 5353* Constricted Environment and Human Behavior. Prerequisite(s): 5013, 5273, PSYC 1113, SOC 1113. An exploration and evaluation of the physical attributes of the constructed environment and the interrelationships with the social and psychological aspects of human behavior.

DHM 5353* Graduate Interior Design Studio. Prerequisite(s): Consent of instructor. Studio course exploring alternative, research-based design solutions for selected interior environments.

DHM 5360* Advanced Studies in Design, Housing and Merchandising. A-3 credits, max 6. A systematic approach to the field of design, housing and merchandising.

DHM 5363* Color Theories and Applications for Apparel and Interiors. Prerequisite(s): Nine hours in DHM graduate courses or consent of instructor. Survey of color theory and its application to the physical, psychological, and aesthetic aspects of apparel and interiors.

DHM 5400* Career Internship. A-6 credits, max 6. Prerequisite(s): Consent of instructor and department head. An individualized career-oriented internship. Selected learning experiences in approved work situations in industry, government, education or research institutions related to design, housing or merchandising.

DHM 5503* Housing and Real Estate for Family Financial Planning. An 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. (Same course as APST 5503)

DHM 5533* Theory and Design of Functional Apparel. Lab 2. Prerequisite(s): 2573, 3013, 5013, or consent of instructor. 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.

DHM 5543* Textile Arts and Design. Lab 6. Prerequisite(s): Permission of instructor/adviser. Interpretation of designs developed through experimental studies in textile surface design and manipulation resulting in portfolio/competition. (Same course as ARTS 5543)

DHM 5603* Historical and Contemporary Issues in Trade. The examination of fiber, textile, and apparel industries in a global context. The historical development of the apparel industry in the U.S. and apparel industries in how and the global environment (economic, political, and social systems) affects the textile and apparel production and trade. (Same course as DIME 5603)

DHM 5613* Merchanidising Research Methods. Prerequisite(s): 5303, 5623, 5633, 5643, 5653 and graduate course in Statistics. An overview of the research process used in social science, including a survey and analysis of research methodologies. A review of current merchandising literature with implications for future research.

DHM 5623* Professional Advancement in Merchandising. 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.

DHM 5633* Product Design, Development and Evaluation. Advanced study of issues and management strategies necessary to design and produce a competitive priced product. Examination of the role of globalization and rapidly changing technology on the development of a successful product.

DHM 5643* Promotional Strategies in Merchandising. 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.

DHM 5653* Merchandising Trends, Practices and Theories in Apparel and Interior Industries. Prerequisite(s): Nine credit hours in marketing, merchandising or management. Current trends in merchandising; theories, concepts and protocols related to management level careers.

DHM 5663* International Merchandising Management. Prerequisite(s): Merchandising or business courses or consent of the instructor. 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.

DHM 5673* Financial Merchandising Implications. 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. (Same course as FHMG 5673)

DHM 5683* Strategic Planning for the Merchandising Executive. 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 maintaining a competitive advantage.

DHM 5810* Problems in Design, Housing and Merchandising. 1-3 credits, max 6. Prerequisite(s): Consent of instructor and department head. Individual and group investigations and discussions of special problems in the various phases of design, housing and merchandising.

DHM 5963* Case Studies in Medical Smart Garment. A-3 credits. Prerequisite(s): 4893 or consent of instructor. Advanced training course designed to activate critical thinking skills needed for problem solving in wearable sensing system development. (Same course as BIOM 5963)

DHM 5984* Capstone in Medical Smart Garment Engineering. A-1 credits. Prerequisite(s): 4893 or 5893 and DHM 5963 or consent of instructor. Project-based course 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 BIOM 5984)

DHM 6000* Doctoral Dissertation. 1-12 credits, max 30. Prerequisite(s): Completion of a master’s research thesis or thesis equivalency and consent of major instructor. Research in design, housing and merchandising for the PhD degree.

DHM 6133* Research Methods in Design, Housing and Merchandising. Prerequisite(s): 5112 and 5013 or equivalent and six credit hours of graduate level statistics. Survey and discussion of research methods, experiences in research design and analysis of data.

DHM 6363* Anthropometrics in Product Design. Prerequisite(s): Graduate standing and 6133 or equivalent. 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 interior design. Comfort, performance, compatibility, portability, safety issues in product design for men, women, children, and special populations.

DHM 6383* Design, Housing and Merchandising in Higher Education. Prerequisite(s): Nine credit hours in design, housing and merchandising. Development and organization of curricula and teaching methods for design, housing, and merchandising.

DHM 6403* Merchandising Theory Application and Strategy Implementation. Prerequisite(s): 5653. Integration of marketing, merchandising, and management theories, strategies, models, and frameworks. Application of theories and implementation of strategies relevant to apparel and interior design.

DHM 6410* Independent Study in Design, Housing and Merchandising. A-3 credits, max 6. Prerequisite(s): Consent of instructor. Selected areas of design, housing and merchandising for advanced graduate students working toward the doctorate degree.

DHM 6413* International Consumer Behavior. Prerequisite(s): 5303. A critical understanding of theoretical and methodological issues with an emphasis on consumer behavior from a cross-cultural perspective and applications of this knowledge to international consumer research and strategy development in international markets.

DHM 6463* Project Management. Analysis of project management strategies and techniques used by architecture, interior design, and construction management firms relating to budget, schedule and personnel, with emphasis on leadership, quality assurance, and risk management issues.

DHM 6810* Advanced Problems in Design, Housing and Merchandising. A-6 credits, max 6. Prerequisite(s): Consent of instructor and department head. Independent individual or small group study of problems in various areas of design, housing and merchandising for advanced graduate students who are working toward doctorate degrees.

DHM 6830* Design, Housing and Merchandising Seminar. A-3 credits, max 6. Prerequisite(s): Consent of instructor. Problems and recent developments in design, housing and merchandising.

Diversity (DIVR) 2003 (D.S) Inclusion Leadership. 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.

DIVR 2213 (D.S) Minorities in Science and Technology: Contributions Past, Present and Future. 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 strategies they overcame to achieve. This course also explores current issues and why inclusiveness matters today and in the future.

DVR 2323 (D,S) Diversity and Inclusion in 21st Century America. 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.

Economics (ECON)

ECON 1113 (S) The Economics of Social Issues. 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. May not be used for degree credit with ECON 2103. No general education credit for students also taking ECON 2103 or AGEC 1113.

ECON 2103 (S) Introduction to Microeconomics. 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 1113. No general education credit for students also taking ECON 1113 or AGEC 1113.

ECON 2203 Introduction to Macroeconomics. Prerequisite(s): 2103 or AGEC 1113. 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.

ECON 3010 SpecialTopics in Economics. 1-3 credits, max 9. Prerequisite(s): 2203, prior approval of instructor. Analysis of a contemporary topic in economics. Course content will vary to reflect changing social issues and trends in applied economics.

ECON 3023 Managerial Economics. Prerequisite(s): 2103. 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.

ECON 3033 Economics of Entrepreneurship and Innovation. Prerequisite(s): 3 credits in Economics. Explores the process of economic innovation and entrepreneurship from both microeconomic and macroeconomic perspectives. Key topics include risk and uncertainty, the psychology of innovation, international change, product versus process innovation, the externality of innovation, innovation profit, innovation life cycle, innovation diffusion, and business cycle instability.

ECON 3113 Intermediate Microeconomics. Prerequisite(s): 2103 and either MATH 2103 or MATH 2144. How the market system organizes economic activity and an evaluation of its performance. Principles of price theory developed and applied to the interactions of consumers and resource owners in markets characterized by different degrees of competition.

ECON 3123 Intermediate Macroeconomics. Prerequisite(s): 2203 and either MATH 2103 or MATH 2144. 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.

ECON 3213 Game Theory and Experimental Economics. Prerequisite(s): Three credit hours in economics. The fundamentals of strategic actions presented in a game theory context and the validation of these ideas with economic experiments.

ECON 3313 Money and Banking. Prerequisite(s): 2203. The economics of money and banking. Operations of commercial banks and structure and composition of the national banking industry. Commercial banking 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.

ECON 3423 Public Finance. Prerequisite(s): Three credit hours in economics. 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.

ECON 3513 Labor Economics. Prerequisite(s): Three credit hours in economics. 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.

ECON 3523 Economics of Health Care and Social Security. Prerequisite(s): Three credit hours in economics. Examination of the long-run budget problems created by an aging society and evaluation of policies designed to solve them, with a focus on Medicare, Medicaid, and Social Security.

ECON 3613 (S) International Economic Relations. Prerequisite(s): Three credit hours in economics. International trade and finance; international economic organizations; the foreign economic policy of the U.S.

ECON 3713 (S) Government and Business. Prerequisite(s): Three credit hours in economics. Methods of measuring the extent of monopoly power in American industries and ways of evaluating the effects of this power on consumer welfare. U.S. antitrust laws, their enforcement and landmark court decisions under these laws.

ECON 3723 The Economics of Sport. Prerequisite(s): 2103. 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.

ECON 3823 (S) American Economic History. Economic development and economic forces in American history; emphasis upon industrialization and its impact upon our economic society since the Civil War. (Same course as HIST 4513)

ECON 3903 Economics of the Environment. Prerequisite(s): 2103. Economic and institutional 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.

ECON 3913 State and Local Economic Development. Prerequisite(s): Three hours in economics. The process of local economic growth and development; innovation, technology, and government policy.

ECON 4113 Energy Economics: Traditional and Renewable Energy Markets. Prerequisite(s): 2103 and either MATH 2103 or MATH 2144. 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.

ECON 4213 Econometric Methods. Prerequisite(s): 2203 and three credit hours in statistics. Basic quantitative methods used in economic analysis emphasizing applications to environmental and energy economics. Analysis of time series and cross-sectional data. Econometric methods and their properties. Interpretation of results. Statistical analyses, regression and forecasting techniques using computer programs.

ECON 4223* Business and Economic Forecasting. Prerequisite(s): 2203 and three credit hours in statistics. 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. Applications of forecasting using computer programs.

ECON 4643 (I,S) International Economic Development. Prerequisite(s): Three credit hours in economics. Problems of underdeveloped economics related to the world economy; obstacles to economic growth and policies for promoting growth.

ECON 4723* Economics Analysis of Law. Prerequisite(s): Three credit hours in economics. Use of economic analysis to explain why certain laws exist and to evaluate the effects of various alternative rules of law on economic efficiency and behavior. Emphasis on the economics of the common law areas of property, contracts, and torts. Also, products liability, crime and punishment, distributive justice, and discrimination.

ECON 4913* Urban and Regional Economics. Prerequisite(s): Three credit hours in economics. Use of economic analysis to explain why certain laws exist and to evaluate the effects of various alternative rules of law on economic efficiency and behavior. Emphasis on the economics of the common law areas of property, contracts, and torts. Also, products liability, crime and punishment, distributive justice, and discrimination.

ECON 4993 Economics Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. A guided reading and research project 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.

ECON 5000 Research and Thesis. Prerequisite(s): Consent of committee chairperson. Supervised research for MS report.

ECON 5010* Research and Independent Studies. Prerequisite(s): Consent of committee chairperson. Supervised research for MS report.

ECON 5020* Research and Independent Studies. Prerequisite(s): Consent of committee chairperson. Supervised research for MS report.
policy. Environmental policy instruments (including pollution taxes, standards and marketable pollution permits), measurement of environmental damages and risk. Risk comparison, regulatory issues, health risk assessment, and risk communication.  

Prerequisite(s): Three hours of An economic examination

ECON 5033* Macroeconomic Analysis. Prerequisite(s): This three-hour course is designed to provide an understanding of economic principles and their applications. The course covers the basic concepts of supply and demand, and how they influence economic decisions. 

ECON 5053* Impact Evaluation of Public Policies. Prerequisite(s): This course focuses on evaluating the effectiveness of public policies. It covers both quantitative and qualitative methods of analysis.

ECON 5113* Managerial Economics. Prerequisite(s): This course provides a framework for understanding the economic principles that underlie managerial decision-making. It covers topics such as production, pricing, and market structure.

ECON 5123* Microeconomics Theory I. Prerequisite(s): 3113. This course covers the basic principles of microeconomics, including demand, supply, equilibrium, and the role of markets in allocating resources.

ECON 5133* Macroeconomic Theory I. Prerequisite(s): 3123. This course builds on the microeconomic concepts learned in ECON 5123 and delves into the macroeconomic framework.

ECON 5173* Energy Economics. Prerequisite(s): ECON 5113 or 2103 or equivalent. This course covers the economics of energy markets, including the role of government policies and market forces in determining energy prices.

ECON 5213* Introduction to Econometrics. Prerequisite(s): STAT 3013 or equivalent; consent of instructor. This course introduces the basic tools of econometrics, including regression analysis.

ECON 5223* Mathematical Economics I. Prerequisite(s): 3113 and MATH 2144 or consent of instructor. This course covers the mathematical foundations of economic theory, including optimization, calculus, and algebra.

ECON 5243* Econometrics I. Prerequisite(s): 4213 or STAT 4043. This course provides an introduction to econometric methods, including estimation and hypothesis testing.

ECON 5263* Introduction to Econometrics II. Prerequisite(s): 5213 or equivalent; consent of instructor. This course continues the study of econometrics, focusing on advanced topics such as panel data and instrumental variables.

ECON 5283* Econometrics II. Prerequisite(s): 5213 or equivalent; consent of instructor. This course covers advanced econometric techniques, including time series analysis and panel data methods.

ECON 5413* Seminar in Economic Theory. Prerequisite(s): Permission of instructor. This course offers an opportunity for students to engage in in-depth study of specific topics in economic theory.

ECON 5423* Seminar in Economic Policy. Prerequisite(s): 5103 or equivalent. This course provides an opportunity for students to explore specific policy issues in depth.

ECON 5433* Economic Development I. Prerequisite(s): Permission of instructor. This course covers the economic development of nations, including factors that contribute to growth and development.

ECON 5443* Economic Development II. Prerequisite(s): Permission of instructor. This course continues the study of economic development, focusing on specific case studies.

ECON 5513* International Finance. Prerequisite(s): Permission of instructor. This course covers the principles of international finance, including the role of currency in international trade and investment.

ECON 5533* International Trade. Prerequisite(s): Permission of instructor. This course covers the principles of international trade, including the role of tariffs and trade agreements.

ECON 5603* Global Economics. This course presents an introduction to international business from a global perspective.

ECON 5633* International Trade and Investment. Prerequisite(s): Permission of instructor. This course covers the principles of international trade and investment, including the role of multinationals.

ECON 5663* Macroeconomics. This course provides an introduction to the principles of macroeconomics and their applications.

ECON 5673* Industrial Organization I. Organization and operation of the enterprise sector of a free enterprise economy; interrelations of market structure, conduct and performance; public policies affecting these elements.

ECON 5703* The Economics of Organization and Competitive Advantage. Prerequisite(s): 3113 or 5113 or consent of instructor. This course covers the principles of organizational economics, including the role of incentives in shaping organizational behavior.

ECON 5713* Industrial Organization II. Alternative market structures and their relationships to market performance; the empirical evidence concerning these.

ECON 5733* Energy Economics: Traditional and Renewable Energy Markets. Prerequisite(s): Permission of instructor. This course covers the economics of energy markets, including the role of renewable energy sources.

ECON 5793* Regional Economic Analysis and Policy. Prerequisite(s): Permission of instructor. This course covers the principles of regional economic analysis, including the role of policy in shaping regional development.

ECON 6000* Research and Thesis. 1-12 credits, max 30. Prerequisite(s): Advanced research in economics. A project-oriented course in which students conduct original research and present their findings.

ECON 6003* Economic Development I. Prerequisite(s): Permission of instructor. This course covers the principles of economic development, including the role of international trade and investment.

ECON 6013* Economic Development II. Prerequisite(s): Permission of instructor. This course continues the study of economic development, focusing on specific case studies.

ECON 6023* Time Series Econometrics. Prerequisite(s): 5243 or equivalent. This course covers the principles of time series analysis, including the role ofBOX-JENKINS models.

ECON 6043* Macroeconomic Theory II. Prerequisite(s): 5123. This course covers advanced macroeconomic theory, including the role of fiscal and monetary policy.

ECON 6053* International Finance. This course covers the principles of international finance, including the role of currency in international trade and investment.

ECON 6063* International Trade. This course covers the principles of international trade, including the role of tariffs and trade agreements.

ECON 6073* Industrial Organization I. Organization and operation of the enterprise sector of a free enterprise economy; interrelations of market structure, conduct and performance; public policies affecting these elements.

ECON 6083* Industrial Organization II. Alternative market structures and their relationships to market performance; the empirical evidence concerning these.

ECON 6093* Energy Economics: Traditional and Renewable Energy Markets. This course covers the economics of energy markets, including the role of renewable energy sources.

ECON 6103* Regional Economic Analysis and Policy. This course covers the principles of regional economic analysis, including the role of policy in shaping regional development.

ECON 6113* Seminar in Econometric Theory. This course provides an opportunity for students to explore specific econometric topics in depth.

ECON 6123* Seminar in Economic Policy. This course provides an opportunity for students to explore specific policy issues in depth.

ECON 6133* Microeconomic Theory II. Prerequisite(s): 5123. This course covers advanced microeconomic theory, including the role of fiscal and monetary policy.

ECON 6143* Macroeconomic Theory II. Prerequisite(s): 5123. This course covers advanced macroeconomic theory, including the role of fiscal and monetary policy.

ECON 6153* International Finance. This course covers the principles of international finance, including the role of currency in international trade and investment.

ECON 6163* International Trade. This course covers the principles of international trade, including the role of tariffs and trade agreements.

ECON 6173* Industrial Organization I. Organization and operation of the enterprise sector of a free enterprise economy; interrelations of market structure, conduct and performance; public policies affecting these elements.

ECON 6183* Industrial Organization II. Alternative market structures and their relationships to market performance; the empirical evidence concerning these.

ECON 6193* Energy Economics: Traditional and Renewable Energy Markets. This course covers the economics of energy markets, including the role of renewable energy sources.

ECON 6203* Regional Economic Analysis and Policy. This course covers the principles of regional economic analysis, including the role of policy in shaping regional development.

ECON 6213* Seminar in Econometric Theory. This course provides an opportunity for students to explore specific econometric topics in depth.

ECON 6223* Seminar in Economic Policy. This course provides an opportunity for students to explore specific policy issues in depth.

ECON 6233* Time Series Econometrics. Prerequisite(s): 5243 or equivalent. This course covers the principles of time series analysis, including the role ofBOX-JENKINS models.

ECON 6243* Econometrics II. Prerequisite(s): 5243. This course covers advanced econometric theory, including the role of multivariate models.

ECON 6253* Macroeconomic Theory II. Prerequisite(s): 5123. This course covers advanced macroeconomic theory, including the role of fiscal and monetary policy.

ECON 6263* International Finance. This course covers the principles of international finance, including the role of currency in international trade and investment.

ECON 6273* International Trade. This course covers the principles of international trade, including the role of tariffs and trade agreements.

ECON 6283* Industrial Organization I. Organization and operation of the enterprise sector of a free enterprise economy; interrelations of market structure, conduct and performance; public policies affecting these elements.

ECON 6293* Industrial Organization II. Alternative market structures and their relationships to market performance; the empirical evidence concerning these.

ECON 6303* Energy Economics: Traditional and Renewable Energy Markets. This course covers the economics of energy markets, including the role of renewable energy sources.

ECON 6313* Regional Economic Analysis and Policy. This course covers the principles of regional economic analysis, including the role of policy in shaping regional development.

ECON 6323* Seminar in Econometric Theory. This course provides an opportunity for students to explore specific econometric topics in depth.

ECON 6333* Seminar in Economic Policy. This course provides an opportunity for students to explore specific policy issues in depth.

ECON 6343* Macroeconomic Theory II. Prerequisite(s): 5123. This course covers advanced macroeconomic theory, including the role of fiscal and monetary policy.

ECON 6353* International Finance. This course covers the principles of international finance, including the role of currency in international trade and investment.

ECON 6363* International Trade. This course covers the principles of international trade, including the role of tariffs and trade agreements.

ECON 6373* Industrial Organization I. Organization and operation of the enterprise sector of a free enterprise economy; interrelations of market structure, conduct and performance; public policies affecting these elements.

ECON 6383* Industrial Organization II. Alternative market structures and their relationships to market performance; the empirical evidence concerning these.

ECON 6393* Energy Economics: Traditional and Renewable Energy Markets. This course covers the economics of energy markets, including the role of renewable energy sources.

ECON 6403* Regional Economic Analysis and Policy. This course covers the principles of regional economic analysis, including the role of policy in shaping regional development.

ECON 6413* Seminar in Econometric Theory. This course provides an opportunity for students to explore specific econometric topics in depth.

ECON 6423* Seminar in Economic Policy. This course provides an opportunity for students to explore specific policy issues in depth.

ECON 6433* Macroeconomic Theory II. Prerequisite(s): 5123. This course covers advanced macroeconomic theory, including the role of fiscal and monetary policy.
EDUC 2000  Special Topics in Education. 1-3 credits, max 3. Specialized readings in education.

EDUC 2510  Innovative Education Studies. 1-3 credits, max 6. 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. Graded on a pass-fail basis.

EDUC 3080  International Experience. 1-18 credits, max 36. Prerequisite(s): Consent of the associate dean of the college. Participation in a formal or informal educational experience outside of the USA.

EDUC 3090 (I) Study Abroad. 1-18 credits, max 18. Prerequisite(s): Participation in an OSU reciprocal exchange program, consent of the Study Abroad office, and associate dean of the college. 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.

EDUC 3110  Honors Directed Study. 1-3 credits, max 3. Prerequisite(s): Admission to the College of Education's Honor Program. Individualized directed study approved by a sponsoring professor or Honors coordinator.

EDUC 4050  Honors Colloquium. 1-9 credits, max 9. Prerequisite(s): Consent of instructor or honors coordinator. Study of an interdepartmental and interdisciplinary nature of various important issues and aspects as related to the field of education. Provides an intellectual challenge for the able student with a strong dedication to scholarship.

EDUC 4110  Professional Education Seminar. 1-6 credits, max 6. Problems, trends, and pertinent education issues. May include simulation, small-group instruction and field-based experiences. For the pre-service or in-service level.

EDUC 5110  Contemporary Educational Issues. 1-6 credits, max 6. Contemporary topics and issues in the broad field of education. May include television and media interaction, small group discussion, and field experiences. Written reports required. Graded on a pass-fail basis.

EDUC 5910*  Educational Field Experiences. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Guided field experience appropriate to a specific program of study. Field experience preceded and followed by appropriate on-campus seminars, readings and reports.

EDUC 5930*  Instructional Effectiveness in Higher Education. Prerequisite(s): Graduate standing or consent of instructor. 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.

Educational Leadership (EDLE)

EDLE 2513  Foundations of Ethical Leadership. Prerequisite(s): 24 hours in good standing; admission into the UGLC or consent of instructor. 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)

EDLE 4513  Ethical Leadership for the Common Good. Prerequisite(s): 2513 or EPSY 2513. Builds on foundational knowledge of ethical theory and leadership studies. Application of ethical theory and leadership skills to specific contexts and evaluation of their results. (Same course as EPSY 4503)

EDLE 5000*  Thesis or Report. 1-10 credits, max 10. Prerequisite(s): Consent of instructor. 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.

EDLE 5203*  Foundations of Adult and Continuing Education. 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 and existing programs in the field.

EDLE 5253*  The Principalship. Prerequisite(s): 5000-level course in school administration or equivalent. Strategies, techniques and solutions used by the principal in the administration and leadership of a public school.

EDLE 5513*  Characteristics of Adult Learners. Learning patterns, interests and participation patterns among adults in a variety of educational settings. Theories of learning and behavior modification for adults, with implications for adult and continuing education programs. Particular attention given to learners in occupational, adult basic, community junior college, extension and proprietary program settings.

EDLE 5523*  School Finance. Development of conceptual bases in economics of education, taxation, distribution systems, policy analysis, application to Oklahoma school finance, and introduction to budget development.

EDLE 5533*  Instructional Strategies for Adults. An analysis and application of the various techniques and materials available to facilitate the learning process for adults. Concentration on the process of designing effective learning experiences for adults and developing competencies of the facilitators of group and self-directed learning.

EDLE 5473*  Supervision of Instruction. 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.

EDLE 5720*  Education Workshop. 1-4 credits, max 8. Analysis of organizational, administrative, and instructional problems by common schools and higher education personnel.

EDLE 5723*  Education Law. Study of the legal framework of education (constitutional law, case law, and Oklahoma law) with emphasis on church-state issues, tort liability, teachers' rights, and student rights.

EDLE 5813*  Leadership Theory and Ethical Decision-Making. Developing understanding of leadership theory and issues related to decision-making in educational settings. Exploring leadership and decision-making within an ethical context.

EDLE 5883*  Field Studies Internship I. Lab 3. Prerequisite(s): Consent of instructor. Directed internship experiences designed to relate ideas and concepts to problems encountered in education by faculty and administrators.

EDLE 5983*  Field Studies Internship II. Lab 3. Prerequisite(s): Consent of instructor. Directed advance internship experiences designed to relate ideas and concepts to problems encountered in educational organizations by faculty and administrators.

EDLE 5953*  Developing Educational Organizations. Prerequisite(s): 5813. Understanding and critically analyzing conventional and novel approaches to the climate and governance of schools and higher education.

EDLE 5973*  Foundations of Higher Education. Overview of the historical background and philosophical foundations of American higher education.

EDLE 5983*  Administrative Issues in Higher Education. Overview of the organization and administration operations and analyses of social, political and legal influences on colleges and universities.


EDLE 6003*  Educational Ideas. Decision-making processes used in educational systems and use of modern technologies for curricular enhancement and professional development.

EDLE 6143*  Resources for the Study of Educational Leadership. Introduction to research traditions, tools and processes that are integral to the study of educational leadership.

EDLE 6233*  Critical Issues in Higher Education. Issues that have shaped and are shaping higher education in American society.

EDLE 6243*  Connecting Theory and Practice in Administering Schools. Application of research findings and theoretical concepts to best practice in administering educational organizations.

EDLE 6343*  Problem Solving in School Administration. Identifying and applying administrative problems, individually and collectively, in school settings.

EDLE 6353*  The Superintendent. 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.

EDLE 6363*  Special Topics in School Finance Policy. Prerequisite(s): Admission to the Graduate College and EDLE 5323 or equivalent. Investigation of problems in education finance policy within the interconnected concepts of liberty, equity, equality, adequacy and efficiency.

EDLE 6393*  The Human Factor in Administering Schools. Analysis and critique of current issues in school personnel administration such as recruitment, selection, promotion, morale, salary, staff relations and teacher assessment.

EDLE 6423*  The Politics of Education. Activities of schools as they relate to the political environment, e.g., voter behavior, change strategies and community power structures.

EDLE 6453*  Special Topics in Education Law. Analysis and critique of selected topics in school law relating to public school administration.

EDLE 6463*  Higher Education Law. National and state constitutional provisions, laws, and court cases concerning higher education. Considerable legal research required.

EDLE 6483*  School Leadership, Culture and Ethics. Prerequisite(s): Admission to the School Administration doctoral program. Ethical dilemmas and leadership are explored. Personal ethics are studied in terms of integrity in leadership roles.

EDLE 6493*  School Improvement/Reform. Prerequisite(s): Admission to the School Administration doctoral program. 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.
EDLE 6583* The Impact of College of Students and on Society. The psychological and sociological impact that attending four-year colleges and universities has on undergraduates from their freshman year until they graduate.

EDLE 6603* Organizational Theory in Education. Selected organizational typologies, conceptualizations and theoretical frameworks as they relate to organizational behavior and behavior of personnel in organizations.

EDLE 6633* School Leadership and Community Collaboration. Promoting student success, goals through collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources.

EDLE 6650* Problems in Educational Administration. 1-4 credits, max 8. Special administrative problem in common schools or higher education, e.g., school plant, school/community relations, administration and the instructional programs, attrition and finance.

EDLE 6683* The Community Junior College. The American two-year college including historical and philosophical development, curricula, students and the learning process, faculty and instruction, administration and governance, support and control. Principles, practices and problems of community colleges in America.

EDLE 6703* Finance in Higher Education. 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.

EDLE 6710* Special Problems. 1-4 credits, max 8. Assists administrators with either recurrent or focus problems arising in common schools or in higher education. Emphasizes evaluation and planning related especially to staff, programs and faculty needs.

EDLE 6713* Effective Teaching in College and Universities. Relevant research and practice about effective college teaching, role of faculty in higher education settings, applications of teaching strategies and lessons for application in college classrooms.

EDLE 6733* Planning and Educational Change. Organizational and environmental parameters, sources of change, barriers to change, and strategies for planning and implementing organizational change.

EDLE 6753* Historical Development of Higher Education. History and development of higher education, studies of objectives and functions of institutional types and of students and faculty.

EDLE 6803* Administration in Higher Education. 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.

EDLE 6823* Educational Leadership. Leadership and the implications of leadership across contexts, cultures and time.

EDLE 6833* College and University Presidency. The role and function of the presidency. For those who anticipate a career in college and university administration or a related management position.

EDLE 6843* The Academic Department. Organization and administration in higher education emphasizing an analysis of the academic department and its leader, the department head.

EDLE 6850* Directed Reading. 1-4 credits, max 6. Directed reading for students with graduate standing.

EDLE 6853* Research Traditions in Educational Leadership. Exploration of advanced integrated research strategies and the development of designs and methods supporting the field of educational leadership.

EDLE 6863* University and College Campus Culture. This course examines the concept of institutional and collegiate culture as a lens to understanding higher education institutions and their various stakeholders.

EDLE 6870* Seminar. 1-3 credits, max 9. Topical issues related to administration and/or higher education, including research techniques available to analyze such topics.

EDLE 6883* Internship in Education I. Lab 3. Prerequisite(s): Consent of instructor. Directed internship experiences designed to relate ideas and concepts to problems encountered in education by faculty and administrators.

EDLE 6893* Internship in Education II. Lab 3. Prerequisite(s): Consent of instructor. Field experiences in a variety of educational work settings.

EDLE 6910* Practicum. 1-5 credits, max 9. Prerequisite(s): Consent of instructor. 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.

Educational Psychology (EPSY)

EPSY 1003 Learning to Learn. Learning effective strategies to succeed through online individual 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.

EPSY 1013 Emotional Skills in Learning Success. 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.

EPSY 2513 Foundations of Ethical Leadership. Prerequisite(s): 24 hours in good standing; admission into the UGLC or consent of instructor. 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 EDLE 2513)

EPSY 3063 Creative Processes and Problem Solving. Interrelationships of multiple creative processes to find, probe, and solve problems in learning, teaching, and advancing a diverse society.

EPSY 3110 Educational Psychology Seminar. 1-3 credits, max 3. Problems, trends, contemporary topics, and pertinent issues in educational psychology. Concentrated study of selected areas not usually addressed in the undergraduate curriculum.

EPSY 3113 Psychological Foundations of Childhood. The child from conception to puberty with focus on educational implications of development in cognitive, affective and psychomotor domains.

EPSY 3213 Psychology of Adolescence. The adolescent from pubescence to adulthood with focus on educational implications of development in cognitive, affective and psychomotor domain.

EPSY 3413 Child and Adolescent Development. The person from conception through adolescence with focus on educational implications of development in cognitive, affective, social, and physical domains.

EPSY 3513 Behavior Management for Teachers of Diverse Learners. Comprehensive and practical introduction to classroom management for diverse learners. Avoidance of behavioral problems through planning, organization and clinical intervention; group development; procedures to develop positive learning environments, individualized management for specific behavior problems are addressed.

EPSY 3523 Response to Intervention (RTI): Responding to At-Risk Learners. 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.

EPSY 3533 Motivating Learners. Current practices in learner motivation, school age through adult. Developing positive attitudes and building community in classrooms to stimulate motivation of all learners.

EPSY 4063* Exploration of the Creative Experience. 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.

EPSY 4223 Human Learning in Educational Psychology. Instructional psychology focusing on the study of teaching and learning theory as part of an instructional program to develop individual, curricular, and environmental differences. Case studies and group discussion emphasizing motivation, planning, evaluation, classroom problems and management.

EPSY 4503 Ethical Leadership for the Common Good. Prerequisite(s): EPSY or EDLE 2513. 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 EDLE 4513)


EPSY 4533 Competency Motivation. 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.

EPSY 5000* Master's Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of advisory committee chairperson. 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.

EPSY 5023* Introduction to School Psychological Service. Prerequisite(s): Admission to school psychometry or school psychology program or consent of instructor. History, role and function, and issues and problems of the school psychological service work.

EPSY 5063* Introduction to Gifted and Talented Education. Concepts, techniques and strategies for providing differentiated educational programs and experiences for the gifted and talented. State and Federal legislation; development of program gifts and talent program types; identification systems; program development; materials development; teaching techniques and methodologies.

EPSY 5103* Human Development in Psychology. Introduction to basic research and theories of cognitive, emotional and social development. Applications to educational and family settings.
EPSY 5113* Child Psychopathology. Prerequisite(s): 5103 or equivalent; enrolled in school psychology, counseling psychology or clinical psychology program or consent of instructor. Survey of theoretical and conceptual issues related to etiology, assessment and treatment of childhood psychopathology. Educational, empirical and clinical taxonomic systems compared and contrasted.

EPSY 5163* Counseling Techniques for Teachers of Gifted and Talented Students. Techniques for dealing with the conflicts experienced by gifted and talented students. Strategies for consulting with teachers, peers, and parents regarding optimal development of gifts. 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.

EPSY 5183* Theories of Social Psychology. Prerequisite(s): Permission of instructor. History, theories, and empirical findings regarding the interactions between individual and group functioning.

EPSY 5210* Introductory Practicum in School Psychometry. 2-6 credits, max 6. Prerequisite(s): Admission to school psychology program and consent of instructor. Various roles and functions of school psychologists; supervised experience with and shadowing of psychological service delivery activities, introduction to science-based child learner success orientation and professional identify as school psychologists.

EPSY 5213* Advanced Educational Psychology. Learning and its effect upon coping and adjustment. How learning, environmental and personality factors interact to change human behavior.

EPSY 5310* Practicum in Child and Adolescent Therapy. 1-6 credits, max 12. Prerequisite(s): 6033 and/or permission of instructor. Practicum offers supervised clinical therapy experience with children, adolescents, and their parents for students in School Psychology.

EPSY 5320* Seminar in Educational and School Psychology. 3-9 credits, max 9. In-depth exploration of contemporary topics in educational and school psychology.

EPSY 5363* Differentiated Curriculum Techniques and Materials for Gifted and Talented. Development of curriculum content for horizontal and vertical enrichment and acceleration. Commercial and teacher-prepared materials in imagination, analogy; metaphor; inductive, deductive and abductive thinking; science, philosophy; psychology; logic systems; problem solving; concept learning; creativity; creative dramatics, etc. Conceptual approaches to the use of the preceding in various interest-based and non-interest-based formats.

EPSY 5403* Issues in Adolescent Development. 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.

EPSY 5463* Psychology of Learning. Application to education of the principles and theories of the psychology of learning.

EPSY 5473* Psychology of Adult Learning. 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 performance and practice 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.


EPSY 5510* Practicum in School Psychology. 2-6 credits, max 6. Prerequisite(s): Admission to school psychology program and consent of instructor. Supervised experience in the schools of psychological service delivery. Assessment, consultation, direct interventions and development of professional practice for school psychologists within school settings. Science-based child-success model. Two-three semester sequence.

EPSY 5603* Developmental Issues in Instruction. Prerequisite(s): Three hours in educational psychology, educational psychology or consent of instructor. 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.

EPSY 5620* Practicum with Exceptional Learners. 1-8 credits, max 8, Lab 1-8. Prerequisite(s): Consent of supervisor. 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.

EPSY 5663* Creativity for Teachers. 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.

EPSY 5713* Transpersonal Human Development. 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.

EPSY 5720* Educational and School Psychology Workshop. 1-9 credits, max 9. Workshop on various topics related to educational and school psychology.

EPSY 5753* Psychoeducational Assessment of Pre-Schoolers. Relevant issues and challenges associated with the intellectual, social and behavioral assessment of preschool children, from the vantage point of recent research, discovery and policy initiatives. The link between assessment and intervention.

EPSY 5763* Teaching Methods and Techniques for the Gifted and Talented. Subject and skill-related learning facilitation that is process-oriented and child-centered. The role of the teacher as facilitator, counselor and non-directive change agent. The role of problem-solving, planning, independent study, tutoring, correspondence, clustering, mentoring, learning centers, resource centers.

EPSY 5783* Psycho-Educational Testing of Exceptional Individuals. Intensive practice in the selection, administration and interpretation of individual tests selected appropriate for exceptional populations in education and education-related settings.

EPSY 5793* Individual Intellectual Assessment of Children and Youth. Prerequisite(s): 5783 or consent of instructor. Intensive study of the Wechsler Scales, the Stanford-Binet, and other selected tests of mental ability. Emphasis and practice in administration, scoring, interpretation. Issues related to report writing and non-discriminatory assessment.

EPSY 5803* Advanced Intellectual Assessment. Contemporary Theories and Assessment of Intelligence and Cognitive Abilities. Prerequisite(s): 5783 or equivalent; good standing in school, counseling, or clinical psychology program, or consent of instructor. Examination of contemporary theories of intelligence and their new and innovative abilities and intelligence test. Appropriate for school, counseling, or clinical psychology students who are already familiar with tests such as the Wechsler Series and the Stanford Binet IV.

EPSY 5813* Parent and Family Interventions in School Psychology. Prerequisite(s): By consent of instructor only. Empirically-supported, parent-implemented interventions for children and adolescents addressing a variety of home and school problems within the discipline of school psychology.

EPSY 5853* Applied Behavior Analysis. 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.

EPSY 5863* Developing Programs for the Gifted and Talented. Programs based on various philosophies and structural concepts of gifted and talented education, e.g., mainstreaming, self-contained, pull-out, time blocking, acceleration and enrichment. Programs designed for general and specific academic ability; however, exposure will be provided to cognitive and productive thinking programs, leadership programs, and visual and performing arts programs. Specific models and practices.

EPSY 5963* Developing Resources to Support Educational Programs. 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-teacher-student-public relations, financial development, grantmanship or resource information sources. Developing Internet resources to support learners.

EPSY 5993* Identification and Behavior Characteristics of the Gifted and Talented. Cognitive, affective, and behavioral characteristics of the gifted and talented. Selection 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 teams.

EPSY 6000* Doctoral Dissertation. 1-25 credits, max 25. Prerequisite(s): Completion of advisory committee and proposal. 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.

EPSY 6030* Doctoral Seminar in School Psychology. 3-6 credits, max 6. Prerequisite(s): Admission to school psychology doctoral program. Research in educational psychology in areas such as philosophy of science, major areas of emphasis, research design, ethical concerns, solving problems in schools, and publication. Scientific and professional ethics and standards of psychologists.

EPSY 6033* Introduction to Psychotherapy with Children and Adolescents. 3 credits. Prerequisite(s): 5113. Development of individual and group skills in therapy in children and adolescents. Applications of theories of psychotherapy to a variety of disorders and coping skills, crisis intervention and adaptive social skills training.

EPSY 6043* Adult Development. Theory and research concerning human development during the adult years. Practical applications for serving adult populations in education and education-related settings.
EDTC 5030*  Advanced Research in Educational Psychology. Students will develop and evaluate computer-based instruction. Students will develop and evaluate computer-based instruction. May not be used for degree credit with EDTC 4113.

EDTC 4123 Applications of Media and Technology. Introduction to the application of media and technology to formal and informal learning situations. May not be used for degree credit with EDTC 3123.

EDTC 5850*  Directed Study. Directed study for master's level students.

EDTC 5753*  Introduction to Instructional Design. 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.

EDTC 5773*  Instructional Systems Management. Evaluation of the instructional environment. Preparation of the dissertation and grant proposals and dissemination of research.

EDTC 5000*  Master's Report or Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading and supervision of doctoral school psychologists for final examination of a dissertation. May not be used for degree credit with EDTC 4113.

EDTC 5720*  Education Workshop. 1-8 credits, max 8. For teachers, principals, superintendents and supervisors who have definite problems in instruction or administration. Students must register for the full number of credits required for a professional development workshop. May be repeated for credit when work assignment varies. Required of all teaching assistants in educational psychology during the first semester of each new teaching assignment.

EDTC 5503*  Facilitating Online Learning. Apply knowledge of pedagogy, standards for online teaching, online community building, and teaching technology to design and facilitate online learning environments.

EDTC 5720*  Education Workshop. 1-8 credits, max 8. For teachers, principals, superintendents and supervisors who have definite problems in instruction or administration. Students must register for the full number of credits required for a professional development workshop. May be repeated for credit when work assignment varies. Required of all teaching assistants in educational psychology during the first semester of each new teaching assignment.

EDTC 5773*  Instructional Systems Management. 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.

EDTC 5850*  Directed Study. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Directed study for master’s level students.

EDTC 6000*  Doctoral Dissertation. 1-15 credits, max 15. Required of all candidates to the Doctor of Education degree. Credit is given upon completion of the thesis.

EDTC 6153* Advanced Computer-Based Instructional Development. Prerequisite(s): 5153 or consent of instructor. Design of user-friendly instructional interfaces and computer-based learning management systems.
ECEN 4153* Power System Analysis and Design. Prerequisite(s): Degree program requires admission to Professional School prior to enrollment. Power system component models from circuit theory. Formulation and design of non-linear load flow models and the optimum economic generator allocation problem utilizing computer methods.

ECEN 4161* Embedded Computer Systems Design. Lab 2. Prerequisite(s): ENSC 3213 and CS 3113. Degree program requires admission to Professional School prior to enrollment. Design of microprocessor-based systems through proper integration of hardware and software. Serial and parallel communications, sensor interface, computer control of external 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.

ECEN 4156* Power Electronics. Prerequisite(s): Degree program requires admission to Professional School prior to enrollment. 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.

ECEN 4157* Power Electronic Systems. Prerequisite(s): Degree program requires admission to Professional School prior to enrollment. 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.

ECEN 4273* Software Engineering. Prerequisite(s): ENSC 3213 or CS 3113. Degree program requires admission to Professional School prior to enrollment. 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. (Same course as CS 4273)

ECEN 4283* Computer Networks. Prerequisite(s): ENSC 3213 or CS 3443. Undergraduate Prerequisite: degree program requires admission to Professional School prior to enrollment. 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)

ECEN 4303* Digital Integrated Circuit Design. Prerequisite(s): Degree program requires admission to Professional School prior to enrollment. 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.

ECEN 4313* Linear Electronics Circuit Design. Prerequisite(s): Degree program requires admission to Professional School prior to enrollment. 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. (Same course as CS 4273)
program requires admission to Professional School prior to enrollment. Class A and B small-signal, push-pull power, complementary symmetry, differential and operational amplifiers, utilizing field-effect transistors, bipolar transistors, tunnel diodes and integrated circuits. Emphasis on amplification in electronic devices, design and analysis of wide-band amplifier circuitry.

ECEN 4353* Communication Electronics. Prerequisite(s): 3314; degree program requires admission to Professional School prior to enrollment. Design of tuned voltage and power amplifiers, oscillators and mixers, modulation and detection, and parametric amplifiers.

ECEN 4413* Automatic Control Systems. Prerequisite(s): 3723 or MAE 3723; degree program requires admission to Professional School prior to enrollment. Properties of feedback control systems, mathematical systems 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 4463.)

ECEN 4503* Random Signals and Noise. Prerequisite(s): 3513, 3714; degree program requires admission to Professional School prior to enrollment. Analysis of electrical systems using elementary concepts of probability, random variables and random processes. Frequency and time domain response of linear systems driven by random inputs. Statistical properties of electrical noise. Analysis and design of optimum linear systems.

ECEN 4523* Communication Theory. Prerequisite(s): 3513; degree program requires admission to Professional School prior to enrollment. Noise in modulation systems. Digital data transmission. Design of optimal receivers. Introduction to information theory.

ECEN 4533* Data Communications. Prerequisite(s): 4503; degree program requires admission to Professional School prior to enrollment. 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.

ECEN 4613* Microwave Engineering. Prerequisite(s): 3613; degree program requires admission to Professional School prior to enrollment. Aspects of propagation, transmission, and radiation of microwave energy. Plane wave propagation; lossless and lossy media; reflection, refraction, and polarization. Transmission line theory; lumped element model, characteristic impedance, impedance matching, and transient response. Theory of waveguides and cavity resonators. Microwave network theory and S-parameters. Introduction to radiating systems.

ECEN 4703* Active Filter Design. Prerequisite(s): 3613; degree program requires admission to Professional School prior to enrollment. Introduction to passive filters; operational amplifiers as network elements; filter specifications; design of active filters. Laboratory design projects and computer simulations.

ECEN 4743* Introduction to Biomedical Engineering Modeling and Systems. Prerequisite(s): 3714, 4763; degree program requires admission to Professional School prior to enrollment. 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 the power of few of major fields of activity in which biomedical engineers are engaged and modeling approaches are implemented.


ECEN 4773* Real Time Digital Signal Processing. Prerequisite(s): 4763 or equivalent; degree program requires admission to Professional School prior to enrollment. 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.

ECEN 4823* Design of Optical Systems. Lab 2. Prerequisite(s): PHYS 2114; degree program requires admission to Professional School prior to enrollment. Design of optical systems. Emphasis on geometrical optics and spectroscopy.

ECEN 4843* Design of Lasers and Systems. Lab 2. Prerequisite(s): 3613; degree program requires admission to Professional School prior to enrollment. Introduction of the design of lasers and optical systems based on lasers including the design of construction, and characterization of lasers. Gaussian beams and optics, laser gain materials, laser cavities, advanced topics.

ECEN 5000* Thesis or Report. 1-6 credits, max 6. Prerequisite(s): Approval of major professor. A student studying for the master's degree will enroll in this course for a maximum of six credit hours.

ECEN 5030* Professional Practice. 1-8 credits, max 8. Experience in application of electrical engineering principles to practical 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. Problem solutions involve economics and ecological considerations as well as technology and must be adequately documented.

ECEN 5060* Special Topics. 1-6 credits, max 30. Prerequisite(s): Consent of instructor. Engineering topics not normally included in existing courses. Repeat credit may be earned with different course subtitles assigned.

ECEN 5070* Directed Studies. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Investigation outside of the classroom of topics not normally covered in lecture courses.


ECEN 5123* Engineering Systems Reliability Evaluation. 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.

ECEN 5153* Direct Energy Conversion. Energy conversion techniques and applications: thermo-electrics, thermotronics, fuels, cells, MR 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.


ECEN 5233* Embedded Sensor Networks. Prerequisite(s): Graduate standing or consent of instructor. 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 applications and new innovations.

ECEN 5253* Digital Computer Design. Prerequisite(s): 4243 or graduate standing. 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 CS 5253.)

ECEN 5263* VLSI Digital Systems Design. Prerequisite(s): 4303; 5253 recommended or graduate standing. 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 for highly concurrent systems. Experimental on-chip performance. Design of reliable and testable circuits and systems. Testing for LSI and VLSI.

ECEN 5263* VLSI Digital Systems Design. Prerequisite(s): 4303; 5253 recommended or graduate standing. 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 for highly concurrent systems. Experimental on-chip performance. Design of reliable and testable circuits and systems. Testing for LSI and VLSI.


ECEN 5333* Semiconductor Devices. Prerequisite(s): 3314 and PHYS 3313 or equivalent. Semiconductor crystal structure and device fabrication, carrier distribution and transport, pn junctions and diodes, bipolar-semiconductor heterojunction, MOSFET, BJF and optoelectronic devices.

ECEN 5353* Advanced Power Electronics. Prerequisite(s): 4133. Characteristics of high power semiconductor devices and the application of such devices to power conditioning, inversion and wave shaping at high power levels.

ECEN 5363* CMOS Analog Integrated Circuit Design. Prerequisite(s): 4763. An advanced study of solid state CMOS linear integrated circuits. Topics include: Op Amps, comparators, multipliers, D/A and A/D converters and Op Amp building blocks. Op Amp building blocks include, differential pairs, current mirrors, gain, output stages, and references. VLSI layout and circuit simulation using SCICE.

ECEN 5373* RF Microwave Circuit Design. Prerequisite(s): 3314, 4613 and 5333 or equivalent. Smith chart, single- and multi-port network, filter design, RF/microwave components and matching, modeling and biasing network, amplifier, oscillators and mixers.

ECEN 5413* Optimal Control. Prerequisite(s): 5713 or MAE 5713. 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)

ECEN 5423* Control of Hybrid Systems. Prerequisite(s): 5713 Linear Systems or consent of instructor. Introduction and definitions. Modeling of hybrid systems. Analysis of hybrid systems. Stability analysis. Switched control systems. Hybrid
Prerequisite(s): 4413 or MAE 4053 or consent of instructor. Kinematic and dynamic analysis of robot manipulators. Inverse kinematics, motion planning and trajectory generation, kinematic planning in robot manipulation design. 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 5463.

ECEN 5463∗ Nonlinear System Analysis and Control. Prerequisite(s): 4413 or MAE 4053. 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.


ECEN 5483∗ Advanced Mechatronics Design. Prerequisite(s): MAE 4733 or similar course and consent of instructor. Optimizing C programming code for microcontrollers using the assembly language instruction set. RS-232 microcontroller communication protocol and analysis. 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.

ECEN 5493∗ Software Design for Real-Time Distributed Systems. Prerequisite(s): 5483 or MAE 5483 or consent of the instructor. Fundamental concepts associated with the design of software for implementation on distributed computer systems using real-time operating systems. Parallel computing in a real-time environment and control algorithm design. State-of-the-art boards including analog-to-digital and digital-to-analog equipment and newest computer-aided software engineering tools.

ECEN 5513∗ Stochastic Systems. Prerequisite(s): 3513 and 4503 or STAT 4033. 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 MAE 5513)

ECEN 5523∗ Estimation Theory. Prerequisite(s): 5513 or MAE 5513. 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 MAE 5523.

ECEN 5533∗ Modern Communication Theory. Prerequisite(s): 5513. 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 transmission. Example system design includes earth-to-earth deep space and terrestrial communication systems and computer communication networks.

ECEN 5543∗ Data Transportation and Protection. Data and its representation; finite field matrices, pseudorandom sequences; information protection; space division networks; synchronization; and channel and error control. (Same course as MAE 5543)

ECEN 5553∗ Telecommunications Systems. Prerequisite(s): Graduate standing or consent of instructor. Surveys the ways and means that voice, data and video are moved long distances. Covers computer networks (Ethernet LAN’s, Internet WAN’s, cable TV telephone systems (PSTN, VoIP and cellular telephone); video (MPEG, H.323, and IPTV); and last mile delivery systems.

ECEN 5563∗ Principles of Wireless Networks. Prerequisite(s): 4283 or CS 4283. Wireless network operation, planning, mobility management, cellular and mobile data networks based on CDMA, TDMA, GSM; IEEE 802-11 WLANs. Ad hoc wireless networks, power management, wireless geo-location and indoor positioning technique. (Same course as CS 5813)


ECEN 5623∗ Antenna Theory. Prerequisite(s): 3613. 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.


ECEN 5703∗ Optimization Applications. Prerequisite(s): Graduate standing. 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. This limited course is intended for engineering and science students. (Same course as CHE 5703, I2EC 5203 and MAE 5703)

ECEN 5713∗ Linear Systems. Prerequisite(s): Graduate standing or consent of instructor. Introduction to the fundamental theory of finite-dimensional linear systems. 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)

ECEN 5733∗ Neural Networks. Prerequisite(s): Graduate standing. Introduction to mathematical models 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 & MAE 5733)

ECEN 5753∗ Digital Processing of Speech Signals. Prerequisite(s): 4763 or 5763. Digital signal processing; speech production; digital modeling of speech; speech analysis and synthesis; the short time Fourier transform; linear predictive coding and solution of the normal equations; vocal tract spectrum calculation; speech coding; homomorphic processing; applications of speech processing. Introduction to more advanced topics as time permits.

ECEN 5763∗ Digital Signal Processing. Introduction to discrete linear systems, frequency-domain design of digital filters; quantization effects in digital filters; digital filter hardware, discrete Fourier transforms; high-speed convolution and correlation with application to digital filtering; introduction to Walsh-Fourier theory.

ECEN 5773∗ Intelligent Systems. Prerequisite(s): 5733. 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, semiotics); reinforcement learning and hybrid systems; and case studies and design projects. (Same course as CHE 5773)

ECEN 5783∗ Medical Imaging. Prerequisite(s): 3513, 4743, or consent of instructor. A comprehensive introduction to the standard medical imaging modalities used today. Topics include radiation, radiation-interaction with matter, X-ray radiography, ultrasound, computer tomography, image reconstruction and medical image processing. Example systems include earth-to-earth deep space and terrestrial communication systems and computer communication networks.

ECEN 5803∗ Geometrical Optics. Prerequisite(s): PHYS 3213 or consent of instructor. Foundations of geometrical optics, geometrical theory of optical imaging, geometrical theory aberrations, image forming instruments. (Same course as PHYS 5123.

ECEN 5823∗ Physical Optics. Prerequisite(s): PHYS 3213 or consent of instructor. 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. The fundamental mathematics underlying each imaging modality is reviewed and the hardware needed to implement each system is examined.

ECEN 5873∗ Digital Image Processing. Prerequisite(s): 4763 or 5763. Digital image processing including image acquisition and characterization, transforms, coding and compression, enhancement, restoration and segmentation. Use of modern image processing software on Sun and IBM work stations.

ECEN 5889∗ Lasers. Prerequisite(s): PHYS 3213 or consent of instructor. Combining ultra fast laser pulses with electronic circuitry. Increased device performance. Optoelectronic/electrical pulses as short as 0.2
ECEN 5923∗ Introduction to MEMS. Prerequisite(s): 5843 or consent of instructor. Fundamentals of Microsystems. Topics include: energy transduction mechanisms, energy dissipation modeling, energy methods, mechanics of small scale, fabrication process design, micromachining, electronic interface.

ECEN 6000 Research. 1-16 credits, max. 36. Prerequisite(s): Consent of major professor. Independent research for students continuing graduate study beyond the level of the M.S. degree.

ECEN 6001 PhD Seminar Series. Prerequisite(s): Approval of ECEN department head. Seminar series for PhD studies and research.

ECEN 6050 Preliminary PhD Research and Proposal. 3 credits, max. 3. Prerequisite(s): Consent of advisor. Independent research and report of an advanced electrical engineering problem. Work performed serves as foundation of the oral PhD preliminary exam.

ECEN 6060∗ Advanced Special Topics. 1-6 credits, max. 30. Prerequisite(s): Consent of instructor. Advanced engineering topics not normally included in existing courses. Repeat credit may be earned with different course subtitles assigned.

ECEN 6070∗ Advanced Directed Studies. 1-6 credits, max. 12. Prerequisite(s): Admission into PhD program and consent of instructor. Investigation outside of the classroom of topics not normally covered in lecture courses.

ECEN 6123∗ Special Topics in Power Systems. Prerequisite(s): 5113. Selected relevant current topics related to power system operation and planning.

ECEN 6253∗ Advanced Topics in Computer Architecture. Prerequisite(s): 5253 or 5263. 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)


ECEN 6363∗ Analog VLSI for Signal Processing. Lab 2. Prerequisite(s): 4273. Continuation of 5363. Advanced theory and practice of analog VLSI design methodology. Very large scale design and implementation of signal processing solutions, including over sampled A/Ds, neural networks and filters.

ECEN 6423∗ System Identification. Prerequisite(s): 5473 or 5713 or MAE 5473 or MAE 5713. Linear and nonlinear modeling of dynamical 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 MAE 6423)

ECEN 6453∗ Adaptive Control. Prerequisite(s): 5473 or 5713 or MAE 5473 or MAE 5713. 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, controller design, 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)

ECEN 6483∗ Robust Multivariable Control Systems. Prerequisite(s): 5473 or MAE 5713. 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)

ECEN 6523∗ Information Theory. Prerequisite(s): 5513 or consent of instructor. 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 wave-forms for noise immunity. Information transfer in learning systems.

ECEN 6803∗ Photonics I: Advanced Optics. Lab 9. Prerequisite(s): 3813 or PHYS 3213 or consent of instructor. 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 generation. Emphasis on ultrashort laser pulses. (Same course as CHEM 6803 & PHYS 6803)

ECEN 6810∗ Photonics II: THz Photonics and THz-TD. 1 credit, max 4, Lab 1, Prerequisite(s): 6803. THz photonics and THz time-domain spectroscopy (THz-TDS). Concepts and techniques of driving electronic circuits 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)

ECEN 6820∗ Photonics II: Spectroscopy I. 1 credit, max 4, Lab 3. Prerequisite(s): Basic 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)

ECEN 6823∗ Advanced Optical Techniques. Prerequisite(s): 5853. 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.

ECEN 6830∗ Photonics II: Spectroscopy III. 1 credit, max 4, Lab 3. Prerequisite(s): 6803. Advanced spectroscopic instruments and methods used for investigation of semiconductors 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)

ECEN 6840∗ Photonics III: Microscopy I. 1 credit, max 4, Lab 3. Prerequisite(s): CHEM 3553 or consent of instructor. The structure and imaging of solid surfaces. Basics of scanning probe microscopy (SPM). Contact and non-contact force microscopy (AFM), scanning tunneling microscopy (STM) in air. (Same course as CHEM 6840 & PHYS 6840)

ECEN 6843∗ Advanced Microelectronic Fabrication. Prerequisite(s): 5843. 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.

ECEN 6850∗ Photonics III: Microscopy II. 1 credit, max 4, Lab 3. Prerequisite(s): CHEM 3553 or consent of instructor. Advanced techniques of scanning probe microscope microscopy (SPM). Magnetic force microscopy, Kelvin force microscopy, scanning probe electron microscopy (STM) in vacuum. Characterization of materials with SPM. Nanolithography with SPM. Device manufacturing and analysis. (Same course as CHEM 6850 & PHYS 6850)

ECEN 6860∗ Photonics III: Microscopy III and Image Processing. 1 credit, max 4, Lab 3. Prerequisite(s): 5793. 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)

ECEN 6870∗ Photonics IV: Synthesis and Devices I. 1 credit, max 4, Lab 3. Prerequisite(s): 6803 and 6840. 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)

ECEN 6880∗ Photonics IV: Semiconductor Devices, Testing and Characterization. 1 credit, max 4, Lab 3. Prerequisite(s): 6803. 6840. Test and characterization of semiconductor and optoelectronic devices. Hall effect, four point probe, CV and IV measurements, optical pump-probe, photoluminescence and optical-absorption measurements. (Same course as CHEM 6860 & PHYS 6860)

ECEN 6890∗ Photonics IV: Semiconductor Synthesis and Devices III. 1 credit, max 4, Lab 3. Prerequisite(s): 6803. 6840. Processing, fabrication and characterization of semiconductor optoelectronic devices in class 100/1000 cleanrooms. Cleanroom operation including general procedure for material processing and device fabrication, level of device 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)

Electrical Engineering Technology (EET)

EET 1003 Introduction to Microcomputer Programming. Lab 2. Co-requisite(s): MATH 1513. 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.

EET 1104 Fundamentals of Electricity. Lab 3. Prerequisite(s): MATH 1513 and consent of department. Elementary principles of electricity covering basic electric units. Ohm's law, Kirchoff's laws, circuit analysis, current, voltage, circuit solutions, network solutions, magnetism, inductance and capacitance.

EET 1244 Circuit Analysis I. Lab 3. Prerequisite(s): 1104. Co-requisite(s): MATH 1613. Analysis of AC electric circuits. The use of network theorems and phasors, coupled circuits, resonance, filters, and power.

EET 2303 Technical Programming. Lab 3. Prerequisite(s): 1104, MATH 1913. Computer programming complementing science/engineering coursework. Introduction to machine programming using industrial standard languages, emphasis on problems from science and technology.

EET 2544 Pulse and Digital Techniques. Lab 3. Prerequisite(s): 1104. Digital electronics used in digital control and computation. Pulse generation, Boolean algebra and logic circuit design.

EET 2635 Solid State Devices and Circuits. Lab 3. Prerequisite(s): 1244, MATH 1613, Diodes, transistors, LSI linear devices; their operation and applications in electronic circuits.

EET 3005 Electronics Analysis I. Prerequisite(s): 1104, 2474, 2544, 2635, MATH 1513, 1613, or evaluated equivalent. Co-requisite(s): MATH 2123.

Extensive use of mathematics in analyzing discrete, linear device, linear systems applications.
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.

**EET 3104 Elements of Electricity and Electronics.** Lab 3. Prerequisite(s): MATH 1513. Essentials of electricity, controls, and electronics for non-majors. No credit for EET majors.

**EET 3113 Circuit Analysis II.** Prerequisite(s): 2635 and MATH 2133. 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.

**EET 3124 Project Design and Fabrication.** Lab 3. Prerequisite(s): 1244, 2544, 2635. Methods of engineering, analyzing and fabricating electronic circuits using standard software packages. Heat transfer characteristics and problem solutions are included.

**EET 3254 Microprocessors I.** Lab 3. Prerequisite(s): 2544. 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.

**EET 3264 Microprocessors II.** Lab 3. Prerequisite(s): 2544, 3254. A continuation of EET 3254. Programming and interfacing of microcontrollers in embedded applications, including interrupts, EEPROM, serial programming, interfacing, power management, algorithms, stepper motor controls.

**EET 3354 Communication and Signal Processing.** Lab 3. Prerequisite(s): 1244, 2635, MATH 2133, GENT 3123; Co-requisite(s): EET 3113. 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.

**EET 3363 Data Acquisition.** Lab 3. Prerequisite(s): 2544 and 2635. 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.

**EET 3524 Advanced Logic Circuits.** Lab 3. Prerequisite(s): 2544. Computer-based design, simulation and implementation of digital systems using programmable logic, field-programmable gate arrays.

**EET 3533 Introduction to Telecommunications.** Lab 3. Prerequisite(s): 2544, 3254. 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.

**EET 3713 Introduction to Electric Power Technology I.** Prerequisite(s): 1244 or 3104, PHYS 1214, MATH 2123 and MATH 2133. Concurrent enrollment in MATH 2133 or equivalent course is acceptable. Physical principles of electromagnetic and electromechanical energy conversion devices and their application to conventional transformers and rotating machines.

**EET 3723 Introduction to Electric Power Technology II.** Lab 3. Prerequisite(s): 1244 or 3104, PHYS 1214, MATH 2123 and 2133. Concurrent enrollment in MATH 2133 or equivalent course is acceptable. Physical principles of electromagnetic and electromechanical energy conversion devices and their application to conventional transformers and rotating machines. Electrical energy generation, transmission and distribution.

**EET 4050 Advanced Electronic Problems.** 1-4 credits, max 4. Prerequisite(s): Junior standing and consent of head of department. Special problems in the electronic area.

**EET 4314 Elements of Control.** Lab 3. Prerequisite(s): 3113 and 3363 and GENT 3123. 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.

**EET 4363 Digital Signal Processing.** Prerequisite(s): 3354, 3363. Introduction to Digital Signal Process. Theoretical development of Fourier transforms, IIR and FIR filters. Significant Design and programming projects.

**EET 4514 Advanced Telecommunication Topics.** Lab 1. Prerequisite(s): 3533. Study of data transmission techniques between digital electronic devices.

**EET 4654 Microwave Techniques.** Lab 3. Prerequisite(s): 2635, 3354. 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.

**EET 4833 Industrial Project Design I.** Lab 6. Prerequisite(s): 20 credit hours of upper-level, electronics courses or consent of instructor. 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 Gannt chart, create a project budget, perform a Preliminary Design Review, Design Prototype.


### Engineering (ENGR)

**ENGR 1111 Introduction to Engineering.** An introduction to the study and practice of engineering. Skills for students in CEAT; expected engineering students. Preparation of students new to CEAT and new to engineering in society. An introduction to engineering ethics; safety issues; and the relationship of engineering to social, global and contemporary issues. Student enrollment opportunities in the CEAT. May not be used for degree credit with ENGR 1113.

**ENGR 1113 Introduction to Engineering Mathematics.** Prerequisite(s): High school algebra or MATH 0123 or equivalent. This course focuses on applications of engineering mathematics to analysis 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.

**ENGR 1322 Engineering Design with CAD.** Lab 2. 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.

**ENGR 1332 Engineering Design with CAD for MAE.** Lab 2. Introduction to engineering design using modern design methodologies and computer-aided tools appropriate for electrical and computer engineering. Design, construction and testing through participation in a multidisciplinary team based design project contest.

**ENGR 1342 Engineering Design with CAD for ECEN.** Lab 2. Introduction to engineering design using modern design methodologies and computer-aided tools appropriate for chemical engineering. Design, construction and testing through participation in a multidisciplinary team-based design project contest.

**ENGR 1352 Engineering Design with CAD for CHE.** Lab 2. Introduction to engineering design using modern design methodologies and computer-aided tools appropriate for chemical engineering. Design, construction and testing through participation in a multidisciplinary team-based design project contest.


**ENGR 2030 Co-op Industrial Practice I.** 1-3 credits, max 6. Prerequisite(s): Sophomore standing and permission of Co-op coordinator. Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department.

**ENGR 2100 Orientation Projects.** 1-3 credits, max 3, Lab 2-6. Prerequisite(s): Pre-engineering standing. Enrollment in independent study or small groups. Projects to assist students with special needs to adjust to engineering curriculum.

**ENGR 3030 Co-op Industrial Practice II.** 1-3 credits, max 6. Prerequisite(s): Junior standing and permission of Co-op coordinator. Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department.

**ENGR 3051 Domestic Scholars Experience.** Prerequisite(s): Consent of the coordinator of CEAT Student Services. Participation in the domestic scholars experience.

**ENGR 3080 International Experience.** 1-18 credits, max 36. Prerequisite(s): Consent of the associate dean of the college. Participation in a formal or informal educational experience outside of the USA.

**ENGR 3090 [I] Study Abroad.** 1-18 credits, max 36. Prerequisite(s): Consent of the Study Abroad office and associate dean of the college. Participation in an OSU reciprocal exchange program.

**ENGR 4010 Engineering Problems and Design.** 0-6 credits, max 6. Prerequisite(s): Permission of the instructor. Special projects and independent study.

**ENGR 4030 Co-op Industrial Practice III.** 1-3 credits, max 6. Prerequisite(s): Senior standing and permission of Co-op coordinator. Pre-engineering industrial practice. Written reports as specified by adviser. Application of credit to meet degree requirements varies with level and department.

**ENGR 4043* [I] International Engineering Service Learning I.** Prerequisite(s): Approval of instructor. 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.

**ENGR 4053* [I] International Engineering Service Learning II.** Prerequisite(s): ENGR 4043 and approval of instructor. 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.

ENGR 4053* "In Technology and Society. 1-3 credits, max 6. Problems of society relating to technology and added problems stemming from their solution. Minimal reliance on mathematics; for engineering and non-engineering students.

ENGR 4061 CEAT Scholars Study Abroad. Prerequisite(s): Permission of instructor. Examination 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.

ENGR 4073* (I) Technology and Culture of Italy. Prerequisite(s): Approval of instructor. 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.

ENGR 4083* (I) Technology and Culture of Brazil. Prerequisite(s): Approval of instructor. 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.

ENGR 4093* (I) Technology and Culture of France. Prerequisite(s): Approval of instructor. 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.

ENGR 4103* Impact of Law on Engineering Practice. Prerequisite(s): Junior standing or consent of instructor. 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.

ENGR 4113 (S) Intellectual Property Law for Technical Professionals. Prerequisite(s): Junior standing or consent of instructor. 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 intellectually property in their daily work.

ENGR 4123 (S) Tort and Products Liability Law for Technical Professionals. Prerequisite(s): Junior standing or consent of instructor. 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.

ENGR 4133 (S) Environmental Regulation for Technical Professionals. Prerequisite(s): Junior standing or consent of instructor. 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.

ENGR 4201 Principles of Nuclear Engineering. 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.

ENGR 4203 Nuclear Technologies in Society: Fulfilling Madame Curie's Dream, 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 developed by students.

ENGR 4211 Introduction to Nuclear and Radiation Engineering Concepts. 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, industry applications of nuclear physics, nuclear medicine, job opportunities at power plants, graduate school and national labs.

ENGR 4213* Elements of Nuclear Engineering. Prerequisite(s): 4201, 4211 or 4203 and MATH 2163, PHYS 2114. 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.

ENGR 4223 Nuclear Reactor Engineering. Prerequisite(s): 4213 and MATH 2233. 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.

ENGR 4233* Energy Systems and Resources. Prerequisite(s): 4213. Energy systems, renewable and non-renewable energy sources, and advances in energy applications.

ENGR 4243* Radiation Protection and Shielding. Prerequisite(s): 4213 and MATH 2233. 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.

ENGR 4253 Nuclear Reactor Analysis. Prerequisite(s): 4213 and MATH 2233. 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 reac theory.

ENGR 4263* Nuclear Reactor Theory. Prerequisite(s): 4243. Introduction to neutron diffusion theory, neutron moderation, neutron thermalization, and criticality conditions of nuclear reactors. Distance education only.

ENGR 4273 Probabilistic Risk Assessment. Prerequisite(s): 4213. This course is a detailed introduction to neutron diffusion theory, neutron moderation, neutron thermalization, and criticality conditions of nuclear reactors.

ENGR 4303 Physical and Chemical Behavior of Petroleum Fluids. Prerequisite(s): 4142, CHEM 1414 or CHEM 1515, ENGR 2213 or permission of instructor. Topics include principles of organic chemistry; properties of hydrocarbon liquids and gases; multicomponent mixtures; phase behavior; surface separation, and gas-liquid equilibria.

ENGR 4313 Drilling Engineering. Prerequisite(s): Consent of instructor. Introduction to drilling systems. Prepares students to analyze nuclear reactor design and solution drilling problems; well cementing; drilling of directional and horizontal wells; wellbore surveying; abnormal pore pressure; fracture gradients; well control; offshore drilling; underbalanced drilling. Offered through distance education only.

ENGR 4333 Production Engineering. Prerequisite(s): Consent of instructor. 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.

ENGR 4343 Reservoir Engineering. Prerequisite(s): Consent of instructor. 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.

ENGR 4363 Deterministic Petroleum Economics and Reserves. Prerequisite(s): Consent of instructor. Deterministic evaluation techniques for oil and gas properties focusing on economic analyses, reserves classifications and depletion making. Offered through distance education only.

ENGR 5010* Engineering Problems and Design. 1-6 credits, max 6. Prerequisite(s): Permission of instructor. Special projects and independent study.

ENGR 5103* Advanced Impact of Law on Engineering Practice. Prerequisite(s): Graduate standing. 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.

ENGR 5113* Advanced Intellectual Property Law for Technical Professionals. Prerequisite(s): Graduate standing. 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.

ENGR 5123* Advanced Tort and Products Liability Law for Technical Professionals. Prerequisite(s): Graduate standing. 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.

ENGR 5132* Advanced Environmental Law for Technical Professionals. Prerequisite(s): Graduate standing. 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.

ENGR 5313* Drilling Engineering. Prerequisite(s): Consent of instructor. Introduction to drilling systems; wellbore hydraulic; casing design; identification and solution drilling problems; well cementing; drilling of directional and horizontal wells; wellbore surveying; abnormal pore pressure; fracture gradients; well control; offshore drilling; underbalanced drilling. Offered through distance education only. No credit with credit in 4213.

ENGR 5333* Production Engineering. Prerequisite(s): Consent of instructor. 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.

ENGR 5343* Reservoir Engineering. Prerequisite(s): Consent of instructor. 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.
ENGR 5363* Deterministic Petroleum Economics and Reserves. Prerequisite(s): Consent of instructor. Deterministic evaluation techniques for oil and gas properties focusing on economic analyses, reserve classifications and decision making. Offered through distance education only. No credit with credit in 4363.

Engineering Science (ENSC)

ENSC 2113 Statics. Prerequisite(s): MATH 2144 and either PHYS 1114 or 2014. Results of statics, equilibrium of rigid bodies, statics of structures, and fluid statics. Shear and moment diagrams.

ENSC 2123 Elementary Dynamics. Prerequisite(s): 2113. 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 kinematics and kinematics of rigid bodies.


ENSC 2213 Thermodynamics. Prerequisite(s): CHEM 1314, 1414 or 1515, MATH 2144, PHYS 2114. Properties of substances and principles governing changes in form of energy. First and second laws.

ENSC 2613 Introduction to Electrical Science. Prerequisite(s): MATH 2153 and PHYS 2114. 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.

ENSC 3213 Computer Based Systems in Engineering. Prerequisite(s): CS 1191 or ENGR 1412 and sophomore or higher standing. A comprehensive introduction to technology and application of microprocessors, concepts of computer and computation, interfacing and communication, data acquisition and representation. Applications of general-purpose and embedded processors in various disciplines of engineering and engineering problem solving.

ENSC 3233 Fluid Mechanics. Prerequisite(s): 2113, MATH 2153. 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.

ENSC 3313 Materials Science. Prerequisite(s): CHEM 1314 or 1414 or 1515. Introductory level. Relationship between structure and properties of materials and engineering applications. Atomic, microscopic and macroscopic properties.

Engineering and Technology Management (ETM)

ETM 5110* Seminar. 1-6 credits, max 6. Prerequisite(s): Admission to the master’s program or consent of instructor. Guided study in a topic area selected to enhance a student’s program.

ETM 5111* Introduction to Strategy, Technology and Integration. Prerequisite(s): Admission to the MSETM program or consent of instructor. Introduction to the unique 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.

ETM 5133* Capstone to Strategy, Technology and Integration. Prerequisite(s): Enrolled in last semester of MSETM program or consent of adviser. Independent analysis of a business problem. Student prepares a proposal and report that makes substantive use of MSETM material, and is a notable and relevant contribution to the student’s organization. Readings and discussions.

ETM 5211* Enterprise Integration. Prerequisite(s): Admission to the MS in ETM program or consent of instructor. 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.

ETM 5231* Benchmarking. Prerequisite(s): Admission to the MS in ETM program or consent of instructor. 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 comparable measures, usually from those in the same or similar industries, including competitors.

ETM 5241* Strategic Project Management. Prerequisite(s): Admission to the MS in ETM program or consent of instructor. Overview of traditional project management concepts and techniques (i.e., Garnt 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 several technical issues related to the effective use. Fundamental nature of the problems associated with several technical issues related to their effective use. Fundamental nature of the problems associated with several technical issues related to their effective use.

ETM 5253* Engineering Problem Solving and Decision-Making. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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 role of decision making in technical systems. The concentration on general systems theory as developed by Ludwig von Bertalaffy.

ETM 5271* Technology Forecasting and Assessment. Prerequisite(s): Admission to the MS in ETM program or consent of instructor. A framework and analytical tools for developing technological foresight. Technology monitoring, forecasting, and assessment in the context of a family of emerging technologies.

ETM 5282* Strategic Planning. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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.

ETM 5291* Failure Mode and Effects Analysis in Design. Prerequisite(s): Admission to the MS in ETM program or consent of instructor. 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.

ETM 5311* Value Engineering. Prerequisite(s): Admission to the ETM program or consent of instructor. 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 roles of application. VE’s use for improving performance reducing life cycle cost.

ETM 5341* Leadership Strategies for Technical Professionals. Prerequisite(s): Admission to the ETM program or consent of instructor. 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.

ETM 5351* Planning Technical Projects. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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.

ETM 5361* Managing Virtual Project Teams. Prerequisite(s): Admission to the MSETM program or consent of instructor. The management and group issues inherent in the application and implementation of effective teamwork in virtual workspaces. 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.

ETM 5371* Ethics for Practicing Engineers. Prerequisite(s): Admission to the MSETM program or consent of instructor. Quantitative evaluation of investment alternatives. Basis for comparison of alternatives, including present worth, annual worth, rate of return and payout period methods. Decision-making among capital constrained and unequal-life projects. Benefit-cost and cost effectiveness analysis.

ETM 5461* Intellectual Property Management. Prerequisite(s): Admission to the MSETM program or consent of instructor. Understanding 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.

ETM 5471* Introduction to System Safety. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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.

ETM 5481* Sustainable Enterprise Strategies. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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 economic tool.

ETM 5491* ISO 9000. Prerequisite(s): Admission to the MSETM program or consent of instructor. 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).
ETM 5511* Capstone Preparation. Prerequisite(s): Admission to the MSETM program and at least 17 hours earned toward MSETM degree or departmental permission. Introduction to the requirements for the ETM Capstone Project, including problem statements, strategic implications, management systems, and problem metrics. Emphasis is placed on persuasive technical communication.

ETM 5521* Quick Response Manufacturing. Prerequisite(s): Admission to the MSETM program or departmental permission. 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, underscoring and exploiting system 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.

ETM 5943* Lean Sigma Implementation. Prerequisite(s): IEM 5113, admission to the MSETM program or departmental permission. 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.

Engineering Technology
(See specific technology programs listed alphabetically)

English (ENGL)

ENGL 0003 Academic English for Graduate Students. Study and practice of English listening, reading and speaking skills required for graduate study. Graded on satisfactory-unsatisfactory basis.

ENGL 1010 Studies in English Composition. 1-2 credits, max 2. Special study in composition to help transfer students to fulfill general education requirements as established by Regent’s policy.

ENGL 1113 Composition I. The fundamentals of expository writing with emphasis on structure, development and style.

ENGL 1123 International Freshman Composition I. 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 1113.

ENGL 1213 Composition II. Prerequisite(s): 1113 or 1123 or 1313. Expository composition with emphasis on technique and style through intensive and extensive readings.

ENGL 1223 International Freshman Composition II, Prerequisite(s): 1113 or 1123. 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 1213.

ENGL 1313 Critical Analysis and Writing I. Expository writing forms, including summary, critique, and synthesis. Writing assignments based on readings from across the curriculum. May be substituted for 1113 for gifted writers who seek a more challenging course.

ENGL 1413 Critical Analysis and Writing II. Critical thinking, research, and writing skills necessary for success in courses across the curriculum. Some sections available for honors credit. May be substituted for 1213 for gifted writers who seek a more challenging course.

ENGL 1923 (H) Great Works of Literature. Readings in the great works of the most important writers of Britain and America, such as Shakespeare, Dickens, Twain, Faulkner, and others.

ENGL 2233 (H) Writing as a Profession. An overview of genres and styles of writing in professional contexts, including organizations, science and industry.

ENGL 2243 (H) Language, Text and Culture. Investigation of how human language relates to culture.

ENGL 2413 (D,H) Introduction to Literature. Fiction, drama/film and poetry that introduces students to the elements of all genres and focuses on the diversity of underrepresented and socially constructed segments of American society. Written critical exercises and discussion.

ENGL 2443 (I) Languages of the World. 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)

ENGL 2453 (H) Introduction to Film and Television. 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.

ENGL 2513 (H) Introduction to Creative Writing. Literary composition with emphasis on techniques and style through readings and writings in fiction, poetry and creative nonfiction.

ENGL 2543 Survey of British Literature I. The beginnings through the Neo-Classic Period.
ENGL 3433 (H) Introduction to Television Studies. Lab 2. 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.

ENGL 3443 (H) Studies in Film Genre. Lab 2. 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.

ENGL 3453 (H) History of American Film. Lab 2. 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.

ENGL 3463 (H,J) History of International Film. Lab 2. Introduction to the history of international cinema and the principal eras in film history, focusing on the moments when different national cinemas flourished.

ENGL 3473 (D) Race, Gender, and Ethnicity in American Film. Lab 2. A survey of race, gender, and ethnicity as they have been represented in American films. (Same course as AMST 3473)

ENGL 3503 (D,H) Television and American Society. 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)

ENGL 3813 (D,H) Readings in the American Experience. 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)

ENGL 3903 Writing Center Theory and Practice. Lab 4. Prerequisite(s): six hours English or consent of instructor. Writing center research with practical applications in writing instruction.

ENGL 3933 (H) Shakespeare. 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.

ENGL 4003* History of the English Language. The growth of the English language.

ENGL 4013* English Grammar. The traditional terminology and concepts of English grammar leading or evolving into the several current systems of description.

ENGL 4033* Discourse Analysis. Introduction to the analysis of the language used in spoken and written discourse contexts in a variety of genres.

ENGL 4043 Teaching English to Speakers of Other Languages. 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.

ENGL 4063* Introduction to Descriptive Linguistics. The methodology of linguistic analysis.

ENGL 4073* Introduction to Sociolinguistics. The study of how languages and varieties vary in social contexts and how they are regarded.

ENGL 4080* Studies in Linguistics. 3 credits, max 6. Study of a topic in linguistics, chosen at the instructor’s discretion.

ENGL 4083* Applied Linguistics. Introduction to the applied study of language in use, including aspects of discourse, power, identity, and language choice among other topics.


ENGL 4100 Studies in Medieval British Literature. 3 credits, max 6. Special topics encompassing the many different ethnic traditions and genres found in medieval British literature.

ENGL 4110 Studies in 16th Century British Literature. 3 credits, max 6. Literature themes of the English Renaissance focusing on related authors and topics. Authors include Shakespeare, Spenser, Sidney, Marlowe, Raleigh, Wyatt, and Surrey.

ENGL 4120 Studies in 17th Century British Literature. 3 credits, max 6. Obtaining an understanding of 17th century British literature while developing skills as a critical thinker, a reader of literary texts and a writer of expository prose.

ENGL 4130 Studies in 18th Century British Literature. 3 credits, max 6. 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.


ENGL 4170 Studies in 20th Century British Literature. 3 credits, max 6. 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.

ENGL 4200 Studies in Early American Literature. 3 credits, max 6. Readings and topics in early American literature and culture.

ENGL 4210 Studies in 19th Century American Literature. 3 credits, max 6. Themes in 19th century American literature with attention to social and cultural contexts.

ENGL 4220 Studies in 20th Century American Literature. 3 credits, max 6. 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.

ENGL 4223* Introduction to Old English. The basics of pronunciation, vocabulary, and grammar, enabling students to read short works in prose and poetry.

ENGL 4263 (H) Moving Image Aesthetics. Lab 2. 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, musical videos and cult cinema, and will include material from both American and international contexts.

ENGL 4300 Studies in Romanticism. 3 credits, max 6. Principle works of Romanticism, reflecting the cultural, social, and political developments.

ENGL 4310 Studies in Modernism. 3 credits, max 6. Selected topics in literature of the early twentieth century. Texts and themes will vary by semester.

ENGL 4320 Studies in Postmodernism. 3 credits, max 6. Approaches to the exploration of postmodernism in literature, other art forms, and culture. The analysis of representative postmodern texts from various genres such as fiction, poetry, drama, film and mass media.

ENGL 4350* Contemporary International Cinema. 3 credits. Lab 2. 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.

ENGL 4400 Studies in Regional Literature. 3 credits, max 6. Literature of a nation such as Ireland or Canada, or of a region such as the American Southwest. Topic varies by semester.

ENGL 4450 Culture and the Moving Image. 3 credits, max 9, Lab 2. Prerequisite(s): 2453. 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.

ENGL 4520* Problems in English. 1-3 credits, max 6. Prerequisite(s): 12 credit hours of English. Specialized readings and independent studies.

ENGL 4523* Professional Writing Internship. Prerequisite(s): 4543 and 4553 or permission of instructor. Supervised work-and-learning experience in writing, editing, document design, and research in the workplace.

ENGL 4530* Studies in Professional Writing. 3 credits, max 9. Prerequisite(s): Six credit hours of English, including 3323. Selected topics in professional writing, focusing on a particular theme, issue or theoretical approach.

ENGL 4543* Style and Editing. Prerequisite(s): 4013. 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.

ENGL 4553* Visual Rhetoric and Design. Prerequisite(s): 3223. Major theories, issues, and methodologies in visual rhetoric and design. Practice of theory through guided composing work.

ENGL 4563* Scientific and Technical Literature. The study of writings about science and technology.

ENGL 4600 Studies in Chaucer or Milton. 3 credits, max 6. Various topics focusing on the works of Chaucer or Milton.

ENGL 4620* Advanced Creative Nonfiction Writing. 3 credits, max 6. Prerequisite(s): 3030 or 3040. Intensive practice in creative nonfiction writing.

ENGL 4630* Advanced Fiction Writing. 3 credits, max 6. Prerequisite(s): 3030. Intensive practice in fiction writing.

ENGL 4640* Advanced Poetry Writing. 3 credits, max 6. Prerequisite(s): 3040. Intensive practice in poetry writing.

ENGL 4650* Advanced Screenwriting. 3 credits, max 6. Prerequisite(s): 3050.
Discussion of professional screenplays and critiquing peers’ work; completion of exercises on structure, visualization, and characterization; and writing a fictional screenplay.

**ENGL 4700** Single Author or Work Pre-1800. 3 credits, max 6. Study of a single author or work prior to 1800 along with supporting literature. Chosen at the instructor’s discretion.

**ENGL 4710** Single Author or Work Post-1800. 3 credits, max 6. Study of a single author or work after 1800 along with supporting literature. Chosen at the instructor’s discretion.

**ENGL 4723 (H)** Studies in Shakespeare. Focus on advanced topics in major plays and selected criticism.

**ENGL 4893** Research Writing for International Graduate Students. Prerequisite(s): Graduate standing or permission of the instructor. Analysis and practice in the grammar and rhetorical structures specific to writing research papers in the disciplines.

**ENGL 4993** Senior Honors Thesis. Prerequisite(s): Admission to Arts and Sciences Honors Program and 3.50 cumulative GPA. For Honors students in their final semester. Thesis written on a topic of student’s choice and directed by a faculty member. Final approval of thesis requires oral defense.

**ENGL 5000** Master’s Thesis. 1-9 credits, max 12. Master’s Thesis.

**ENGL 5013** Introduction to Graduate Studies. Principles and procedures in scholarly research.

**ENGL 5063** Seminar in Shakespeare. Intensive study of a limited number of plays. Assignment of problems to individual students.

**ENGL 5093** Seminar in Milton. Poetry, major prose and criticism.

**ENGL 5120** Studies in Teaching English as a Second Language. 1-3 credits, max 6. Selected topics in teaching English as a second language; e.g. cross-cultural communication, materials preparation, bilingual education.

**ENGL 5123** Approaches to Language Acquisition. An overview of theories of first and second language acquisition.

**ENGL 5130** Studies in English Grammar. 3 credits, max 6. Selected study of current topics in grammatical theory as it applies to the teaching of English.

**ENGL 5133** Phonetics and Phonology. Exploration of fundamental aspects of the use of sound in human language.

**ENGL 5140** Seminar in Linguistics. 3 credits, max 6. Selective study of current topics in linguistics.

**ENGL 5143** Descriptive Linguistics. An introduction to phonology, morphology, syntax and semantics.

**ENGL 5153** Syntax. The study of the principles and rules for constructing phrases and sentences in natural languages.

**ENGL 5163** Middle English Literature. Major works in Middle English.

**ENGL 5173** Sociolinguistics. Introduction to linguistic change and variation in speech communities, focusing on the methods of data collection and analysis.

**ENGL 5183** Acoustic Phonetics. Prerequisite(s): 5143 or 5133 or PDP. 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.

**ENGL 5201** Writing Center Theory and Pedagogy. The study of writing center theory and practice with the goal of application to one-to-one pedagogy.

**ENGL 5210** Seminar or Directed Study. 1-6 credits, max 9. Specialized readings of independent studies.

**ENGL 5213** Composition Theory and Pedagogy. The study of methods and materials for effective one-to-one and one-to-many teaching.

**ENGL 5223** Professional Writing Theory and Pedagogy. 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.

**ENGL 5243** Teaching English as a Second Language. Materials and methods of second language instruction.

**ENGL 5313** Internship, Teaching English as a Second Language. Supervised teaching of beginning through advanced English as a second language courses.

**ENGL 5333** Seminar in TESL: Testing. Standardized testing for teaching English as a second language.

**ENGL 5340** Studies in Discourse Analysis. 3 credits, max 9. Selected topics in the study of language in use in spoken or written contexts.

**ENGL 5353** Studies in the History of Rhetoric. An exploration of selected topics and texts in the history of Western and non-Western rhetoric from the classical period to the present.

**ENGL 5360** Seminar in Screen Studies. 3 credits, max 9. The exploration of key aesthetic issues of analysis and evaluation as they pertain to film criticism.

**ENGL 5363** Critical Approaches to Screen Studies: Theory and History. Designed to provide students with an overview of fundamental theoretical and historical scholarship in film and television studies.
ENGL 6210* Seminar or Directed Study. 1-6 credits, max 9. Specialized readings or independent studies.

ENGL 6220* Seminar in Genre. 3 credits, max 9. The development, traditions, concerns or characteristics of genre in selected texts. Major genres and subgenres considered.

ENGL 6240* Studies in Literature. 3 credits, max 9. Advanced topics in literature and literary research.

ENGL 6250* Seminar in Race and Ethnicity. 3 credits, max 9. Study of the complex representation of race and ethnicity in literature.

ENGL 6260* Studies in Literary Criticism. 3 credits, max 9. Selected work in literary criticism, for example ancient and neo-classical, 19th century, 20th century.

ENGL 6270* Seminar in Region. 3 credits, max 9. Study of regional literature or language variation.

ENGL 6280* Seminar in Gender. 3 credits, max 9. Examination of gender as an analytical category in the study of literature, discourse and society.

ENGL 6350* Topics in Rhetorical Theory. 3 credits, max 9. 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.

ENGL 6360* Seminar in Film and Society. 3 credits, max 9. Social conduct and value systems as they affect the role of media in culture.

ENGL 6410* Topics in Linguistics. 3 credits, max 9. Prerequisite(s): 5143. Study of advanced topics in linguistic theory and research.

ENGL 6420* Topics in Second Language Acquisition. 3 credits, max 9. Prerequisite(s): 5243. Study of topics in second language theory and research.

ENGL 6500* Topics in Professional Writing. 3 credits, max 9. In-depth study of selected topics in professional writing.

Entomology (ENTO)


ENTO 2143 Global Issues in Agricultural Biosecurity and Forensics. 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. (Same course as PLP 2143)

ENTO 2223 (N) Insects in Global Public Health. Biology of diseases carried by arthropods, including their historical and societal impacts focusing on the intersection of arthropod and human biology.

ENTO 2993 (L,N) Introduction to Entomology. Basic biology and classification of insects and closely related animals. Overview of the ecological roles of insects in natural and managed ecosystems.

ENTO 3003 Livestock Entomology. 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.

ENTO 3021 Postharvest, Structural and Urban Arthropod Pests. Lab 2. Prerequisite(s): 2993. The biology and management of insect pests of bulk-stored grains, flour, feed, dried fruits and nuts within food processing plants, warehouses, wholesale and retail distribution systems. Common structural and urban arthropod pests found in and around man-made buildings and their identification, biology and standard management practices.

ENTO 3044 Insect Physiology. Lab 2. Prerequisite(s): 2993 and one course in organic chemistry and nine credit hours of biology. Functions of organ systems and demonstration of selected techniques for study of insect physiology. Offered in combination with 5044. No credit for both 3044 and 5044.

ENTO 3331 Insect Pests of Agronomic Crops. Lab 2. Prerequisite(s): 2993 or concurrent enrollment. A survey of important pests of agronomic crops commonly grown in Oklahoma. Coverage includes identification of pests and beneficial insects, recognition of damage symptoms, discussion of sampling strategies and decision-making processes for management, and integrated pest management tactics.

ENTO 3421 Horticultural Insects. Lab 2. Prerequisite(s): 2993 or concurrent enrollment. 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.

ENTO 3481 Insects in Forest Ecosystems. Lab 2. Prerequisite(s): 2993 or concurrent enrollment. Identification and seasonal life history of insect pests and beneficial insects on shade trees in urban settings, in commercial forests, and in forest products.

ENTO 3501 Entomology for Educators. Lab 2. 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.

ENTO 3644 Insect Morphology. Lab 4. Prerequisite(s): 2993 or equivalent. Insect development and comparative morphology. Offered in combination with 5644. No credit for both 3644 and 5644.

ENTO 3663 Turfgrass Integrated Pest Management. Lab 2. Prerequisite(s): PLP 3343 or ENTO 2893. The biology, ecology, and identification of fungal, nematode and insect turfgrass pests. Contentionary concepts and applications of integrated control practices available for managing turfgrass pests along with decision-making tools for use in turfgrass pest management programs. (Same course as PLP 3663)

ENTO 4223* Ecological Methodology. Lab 2. Prerequisite(s): One course in either ecology or general biology. 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 light of the effects of groups on ecosystem levels.

ENTO 4400 Special Topics. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Special topics in plant pathology, entomology or related fields. (Same course as PLP 4400)

ENTO 4464 Insect Biology and Classification. Lab 4. Prerequisite(s): 2993 or equivalent or consent of instructor. Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Identification of insects in shaping ecosystem diversity, as indicators of environmental integrity, and as vectors of plant and animal pathogens and parasites.

ENTO 4484 Aquatic Entomology. Lab 4. Prerequisite(s): 2993 or ZOOL 1604 or consent of instructor. Biology, taxonomy and ecology of insects and other invertebrates inhabiting freshwater environments. Emphasis is placed on identification and biology of insect taxa. Roles of insects in aquatic ecology as a forge base, and as indicators of biotic integrity of aquatic systems. Linkages between aquatic systems and terrestrial systems are also examined. No credit for students with credit in ENTO 5484 or ZOOL 5484. (Same course as ZOOL 4484)

ENTO 4733 Insect Behavior and Chemical Ecology. Prerequisite(s): 2993 and CHEM 3105 or equivalent. 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.

ENTO 4800 Entomology Practicum. 1-6 credits, max 6. Prerequisite(s): Consent of instructor coordinator and adviser. 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.

ENTO 4854 Medical and Veterinary Entomology. Lab 4. Prerequisite(s): 2993 or equivalent or consent of instructor. Biology, ecology and control of 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 PLP 4923 and PLNT 4923)


ENTO 5003* Insect Biochemistry. Prerequisite(s): Consent of instructor. Biochemical processes in insects and closely related arthropods with emphasis on metabolic pathways unique to this group. Biochemical aspects of arthropod host interactions.

ENTO 5020* Special Problems. 1-8 credits, max 8. Prerequisite(s): Graduate standing. Selected studies in an area of entomology, acarology or araneology.

ENTO 5044* Insect Physiology. Lab 2. Prerequisite(s): 2993 or equivalent and one course in organic chemistry and nine credit hours in biology. Functions of the organ systems and demonstration of selected techniques for study of insect physiology. Offered in combination with 3044. No credit for both 3044 and 5044.

ENTO 5464* Insect Biology and Classification. Prerequisite(s): 2993 or equivalent or consent of instructor. Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Identification 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 5464.

ENTO 5484* Aquatic Entomology. Lab 4. Prerequisite(s): 2993 or ZOOL 1604 or consent of instructor. Biology, taxonomy and ecology of insects and other invertebrates inhabiting freshwater environments. Emphasis is placed on identification and biology of insect taxa. Roles of insects in aquatic ecology as a forge base, and as indicators of biotic integrity of aquatic systems. Linkages between aquatic systems and terrestrial systems are also examined. No credit for students with credit in ZOOL 5484, ENTO 4484 or ZOOL 5484.
Entrepreneurship and Emerging Enterprise (EEE)

EEE 1010 Creativity, Innovation and Entrepreneurship. 1-3 credits, max 6. 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.

EEE 1020 Creativity, Innovation and Entrepreneurship II. 1-3 credits, max 6. Examination of the underpinnings of entrepreneurship and innovation as each relates to the creative process. An applied perspective is adopted in examining the interfaces between creativity, innovation and entrepreneurship. Intended for students in Creativity, Innovation and Entrepreneurship Learning Community.

EEE 2023 Introduction to Entrepreneurship. Lab 1. 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.

EEE 3020 Business Plan Laboratory. 1-3 credits, max 3. 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.

EEE 3023 Introduction to Entrepreneurial Thinking and Behavior. Prerequisite(s): Sophomore standing. Overview of entrepreneurial thinking and behavior and its role in our lives. Examination of what it takes to start and sustain new business concepts and ventures. Central focus is on the issues surrounding effective implementation of the entrepreneurial process across a variety of contexts.

EEE 3033 (D) Women and Minority Entrepreneurship. 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 the opportunities, challenges, and strategies when creating ventures.

EEE 3123 Entrepreneurship and The Arts. 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. No credit for students with credit in 5123.

EEE 3263 Entrepreneurial Marketing. Prerequisite(s): 3023, MKTG 3213 and completion of business core classes or instructor permission. 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. No credit for students with credit in EEE 5223 or MKTG 5223. (Same course as MKTG 3263)

EEE 3403 Social Entrepreneurship. 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. Students may not take both EEE 3403 and EEE 5403* for credit.

EEE 3513 Growing Small and Family Ventures. Prerequisite(s): 3023 or instructor permission. Exploration of unique challenges involved when growing social 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.

EEE 3563 Imagination in Entrepreneurship. Prerequisite(s): 3023 or instructor permission. 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. No credit for students with credit in 5663.

EEE 3713 Native American Entrepreneurship. Understanding the impact of 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 5713.

EEE 4010 Special Topics in Entrepreneurship. 1-6 credits, max 6. Examination of entrepreneurship issues. Specific topics vary from semester to semester.

EEE 4113 Dilemmas and Debates in Entrepreneurship. Designed around a series of critical dilemmas confronted by entrepreneurs when creating and growing a venture. Entrepreneurs explore with students the issues surrounding dilemmas in a structured and guided setting.

EEE 4263 Corporate Entrepreneurship. Prerequisite(s): 3023 or instructor permission. 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 potential entrepreneurship within firms. No credit for students with credit in 5263.

EEE 4313 Emerging Enterprise Consulting. Prerequisite(s): 3023 and junior standing. 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 5313.

EEE 4483 Entrepreneurship and New Technologies. Prerequisite(s): 3023 or instructor permission. Assessment of technologies and their marketplace potential. Issues in technology commercialization are examined from an entrepreneurial perspective. Students work on implementation issues surrounding actual emerging technologies originating at the university and in the surrounding community.

EEE 4513 Strategic Entrepreneurial Management. Prerequisite(s): Senior standing. The capstone project-intensive experience required of all business students, culminating in the development of a comprehensive plan for a new business or nonprofit venture. All students compete in the Capstone Competition at the end of the semester.

EEE 4603 (I) Entrepreneurship Empowerment in South Africa. Prerequisite(s): Instructor permission required. Introduction to the supporting emerging enterprises assessment model. Increased focus 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 5603.

EEE 4610 Entrepreneurship Practicum. 1-6 credits, max 6. Prerequisite(s): 3023 and instructor permission. 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.

EEE 4653 Venture Capital. Prerequisite(s): 3023 or instructor permission. 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.

EEE 5113* Entrepreneurship and Venture Management. Prerequisite(s): Admission to MBA program or instructor permission. Entrepreneur 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.

EEE 5123* Entrepreneurship and The Arts. 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. The course is devoted to opportunity recognition, innovation, creative problem-solving, risk assessment and management, resource leveraging and related entrepreneurial capabilities. No credit for credit in 3123.

EEE 5133* Dilemmas and Debates in Entrepreneurship. Prerequisite(s): Graduate standing. 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.

EEE 5200* Special Topics in Entrepreneurship. 1-6 credits, max 6. Prerequisite(s): Graduate standing. Examination of entrepreneurship issues. Specific topics vary from semester to semester.

EEE 5213* Entrepreneurship in Science and Technology. Assessment of technologies and marketplace potential. Issues in technology commercialization are examined from an entrepreneurial perspective. Students work on implementation issues surrounding actual emerging technologies originating at the university and in the surrounding community. Students in science and engineering disciplines.

EEE 5223* Entrepreneurial Marketing. Prerequisite(s): Admission to MBA program or instructor permission. Integration 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)

EEE 5263* Corporate Entrepreneurship. Prerequisite(s): Admission to MBA program or instructor permission. 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.

EEE 5313* Emerging Enterprise Consulting. Prerequisite(s): Admission to the MBA program or instructor permission. Using an established methodology, student teams work with local entrepreneurs in establishing consulting priorities within their ventures and producing tangible deliverables that solve business needs and opportunities. All facets of business are addressed.

EEE 5333* Launching a Business: The First 100 Days. 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.

EEE 5403* Social Entrepreneurship. 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. Students may not take both EEE 3403 and EEE 5403* for credit.

EEE 5493* Entrepreneurship and Architecture. Prerequisite(s): Admission to a graduate program. 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)

EEE 5513* Growing Small and Family Ventures. Prerequisite(s): 3023 or instructor permission. 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. No credit for credit in 5513.

EEE 5603* Entrepreneurship Empowerment in South Africa. Prerequisite(s): Instructor permission required. Introduction to the supporting emerging enterprises assessment model. Increased focus 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 4603.

EEE 5610* Advanced Entrepreneurship Practicum. 1-6 credits, max 6. Prerequisite(s): 5113. 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.

EEE 5653* Venture Capital. Prerequisite(s): 5113, admission to MBA program or instructor permission. 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 4653.

EEE 5663* Imagination in Entrepreneurship. Prerequisite(s): Graduate standing. Exploration of creativity and ideation as they relate to the entrepreneurial process. Perspectives on opportunity discovery and assessment are examined. Theoretical and conceptual foundations for the application of creativity to business problem solving are investigated.

EEE 5713* Native American Entrepreneurship. 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.

EEE 5993* Preparing Effective Business Plans. Prerequisite(s): ACCT 5183, 5283, FIN 5013, MGMT 5113, EEE 5113, 5563 and 5333. 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.

EEE 6200* Entrepreneurship Research Project. Prerequisite(s): Admission to doctoral program and instructor permission. Directed research projects for doctoral students. Students conduct publishable research on leading issues in entrepreneurship.

EEE 6213* Entrepreneurship: Cross-Disciplinary Interfaces. Prerequisite(s): Doctoral student standing and consent of instructor. Survey of the existing conceptual, theoretical, and practical links between entrepreneurship and other disciplines. Exploration of opportunities for cutting edge research on the intersections of entrepreneurship and other disciplines.

EEE 6263* Theoretical Foundations in Entrepreneurship. Prerequisite(s): Doctoral student standing and consent of instructor. 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.

EEE 6343* Entrepreneurship Processes. Prerequisite(s): Doctoral student standing and consent of instructor. 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.

EEE 6353* Contemporary Research Topics in Entrepreneurship. 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.

EEE 6363* Individual Theories in Entrepreneurship Research. Prerequisite(s): Admission to doctoral program. Analysis of research and theories related to the individual entrepreneur.

Environmental Science (ENVR)

ENVR 1113 Elements of Environmental Science. 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.
ENV 3113* Sampling and Analyses for Solving Environmental Problems. Lab 3. Prerequisite(s): 1113 and CHEM 1215 or CHEM 1314 and BIOL 1114. Provide multiple examples for evaluating the evidence which documents environmental problems. Develop sampling skills required to obtain biological and physical data for the evaluation of environmental problems. Analyze biological and physical data using basic statistical methods and determine the 1) severity of water, soil, and air pollution, and 2) degree of ecosystem degradation. Present findings as written reports which emphasize the use of comparative graphs, tables, and figures.

ENV 4010 Internships in Environmental Science. 1-6 credits, max 6. Prerequisite(s): Junior standing in environmental science or consent of instructor. Supervised internships with business, industry, or governmental agencies in environmental assessment and remediation.

ENV 4112* Land Measurement and Site Analysis. Lab 2. Prerequisite(s): MATH 1513 or equivalent. Methods and techniques used to locate sites and evaluate physical conditions with the goal of collecting the required information for an environmental impact report; includes Public Land Survey System (PLSS), equipment selection and use, Global Positioning System (GPS), data collection and analysis, and mapping. (Same course as CAG 4112)

ENV 4363* Environmental Soil Science. Prerequisite(s): BIOL 1114 and SOIL 2124. 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)

ENV 4500 Environmental Science Problems. 1-6 credits, max 6. Prerequisite(s): Upper-division standing, GPA of 2.50 or better, and consent of instructor. 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.

ENV 4512 Environmental Impact Analysis. 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. Graded on a pass/fail basis.

ENV 4811 Professional and Capstone Planning. Prerequisite(s): Senior standing. Preparation to work and communicate with environmental professionals and develop a written proposal to solve an environmental application or problem.

ENV 4813 Environmental Science Applications and Problem Solving. Lab 4. Prerequisite(s): 4811 or consent of instructor. Team work on environmental problems, to develop solutions and communicate recommendations to professionals as part of a senior capstone project. Results are presented by oral and written reports directly to professionals.

ENV 4893 Soil Chemistry and Environmental Quality. Prerequisite(s): SOIL 2124 and CHEM 1225. Chemical and colloidal properties of clays and organic matter in soil systems, including ion exchange, retention, and precipitation; soil organic matter; soil structure and permeability; soil oxidation-reduction reactions; trace and toxic elements, water quality; land application of wastes, and soil remediation. (Same course as SOIL 4893)

ENV 4913 Animal Waste Management. Prerequisite(s): SOIL 2124. 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)

ENV 5000* Master’s Thesis. 1-3 credits, max 6. Prerequisite(s): Approval of advisory committee and departmental steering committee. Research leading to master’s thesis or report.

ENV 5050* Readings in Environmental Science Topics. 1-3 credits, max 9. Prerequisite(s): Consent of the instructor. 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.

ENV 5123* Environmental Problem Analysis. Prerequisite(s): 5303. 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.

ENV 5200* Special Topics in Environmental Science. 1-4 credits, max 10. Prerequisite(s): Graduate standing. 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.

ENV 5210* Seminar in Environmental Science. 1-3 credits, max 6. Prerequisite(s): Consent of the instructor. This seminar is offered as a special topics course for masters students. The theme of the seminar will vary in accord with recent advances in environmental science and the interests of the faculty instructor.

ENV 5303* Issues in Environmental Sustainability. Prerequisite(s): 3000 or 4000 level ecology course. 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.

ENV 5313* Clean Air Act: Regulation, Compliance and Reporting. 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 regulatory requirements and legal standards for compliance. The course will focus on U.S. Federal and State application.

ENV 5353* Environmental Outreach and Education. Techniques for environmental education and outreach programs for adults and children in the classroom and in the public arena.

ENV 5443* Hazardous Waste Regulations for Environmental Managers. Covers air, water and waste permitting plans as well as DOT transportation of hazardous materials and several OSHA standards.

ENV 5453* Bioremediation for Environmental Managers. Teaches the fundamental biological mechanisms that allow microorganisms and plants to degrade and/or remove contaminants from the environment.

ENV 5503* Environmental Management Practicum. Prerequisite(s): 18 credit hours, which must include one environmental compliance course (POLS 5633 or CIVE 5123), and one environmental risk course (POLS 5643, POLS 5653, or CIVE 5823); OR comparable courses as approved by the instructor. 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. Required for masters students pursuing a plan of study in environmental management.

ENV 5510* Environmental Management Internship. 3 credits, max 6. Prerequisite(s): 5503 and consent of instructor. Professional environmental management internship. 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.

ENV 5523* Industrial Ecology for Environmental Scientists. Prerequisite(s): General biology. Provides students with an overview and broad understanding of ecological 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.

ENV 5543* Environmental Management Systems. Prerequisite(s): 5303 or equivalent knowledge with consent of instructor. This course introduces strategies for the design and operation of environmental management systems that prevent, reduce, or minimize impacts in compliance with existing or emerging regulations. Topics include system management, workplace health and safety, and environmental assessment andcfga
d 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. Graded on a pass/fail basis.

ENV 5573* Applied Standards for Environmental Managers. Foundational understanding of the complex regulatory framework related to waste management.

ENV 5633* Physical Geology for Environmental Managers. 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.

ENV 5703* Chemical Aspects of Environmental Science I. Prerequisite(s): CHEM 1225, MATH 2155. For non-chemists with a basic understanding of industrial environmental chemistry. For the environmental professional student in the chemistry and environmental chemistry concentrations required for permitting, such as the Clean Air Act, the Clean Water Act, releasing pollution control (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.

ENV 5713* Chemical Aspects of Environmental Science II. Prerequisite(s): 5703. A continuation of 5703. Applications of statistical methods for environmental monitoring, environmental sampling, chemical wastewater analysis, environmental assessment and remediation.

ENV 5733* Environmental Site Assessment. 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/geochemistry/hydrogeology principles relating to environmental assessments, and various activities associated with conducting environmental site assessments.
ENVR 5743* Environmental Impact Assessment. 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.

ENVR 5753* Environmental Site Remediation. Introduction to concepts associated with environmental site remediation. Emphasis will be placed on the application and assessment of site clean-up.

ENVR 5823* Watershed Management. 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.

ENVR 5853* Field Stream Assessment. 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.

ENVR 6000* Doctoral Research for Dissertation. 1-12 credits, max 24. Prerequisite(s): Approval of advisory committee. Research leading to the PhD dissertation.

ENVR 6011* Survey of Environmental Science. This course introduces newly admitted environmental science students to environmental research conducted by faculty members. The course also helps students understand the 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.

ENVR 6023* Research Methodologies in Environmental Science. Prerequisite(s): Permission of student’s research adviser. Introduction to research techniques and literature in environmental science for doctoral students.

ENVR 6031* Interdisciplinary Research Report Preparation. Prerequisite(s): 6023 or AGED 5983 and permission of the student’s research adviser. 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 also 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.

ENVR 6050* Advanced Readings in Environmental Science. 1-3 credits, max 9. Prerequisite(s): Consent of the instructor. This course provides an avenue for doctoral students to extend their knowledge of environmental science topics not covered in other courses.

ENVR 6210* Advanced Seminar in Environmental Science. 1-3 credits, max 9. Prerequisite(s): Consent of the instructor. 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.

ENVR 6310* Advanced Topics in Environmental Science. 1-3 credits, max 6. Prerequisite(s): 24 credit hours of graduate credit and permission of instructor. 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.

ENVR 6503* Advanced Environmental Management Practicum. Prerequisite(s): 30 credit hours, which must include one environmental compliance course (POL 5633 or CIVE 5123), and one environmental risk course (POL 5643, PLS 5653, or CIVE 5823); OR comparable courses as approved by the instructor. 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.

ENVR 6516* Advanced Environmental Management Internship. 6 credits. Prerequisite(s): 6503 and consent of program director. The student must identify and solve an environmental problem in collaboration with a competent professional environmental manager, and submit and defend a formal report of the 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.

ENVR 6623* Social Aspects of Environmental Planning. 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.

Finance (FIN)

FIN 2123 Personal Finance. A first course in the management of the individual’s financial affairs: saving, budgeting, use of credit, mortgage financing, investment and estate planning.

FIN 3115 Finance. Prerequisite(s): STAT 2023 and ACCT 2203 or concurrent enrollment; and ECON 2203 or concurrent enrollment. Operational and strategic financial problems including allocation of funds, asset management, financial information systems, financial structure, policy determination and analysis of the financial environment.

FIN 3613 General Insurance. Prerequisite(s): 3113. Introduction to the theory and general principles of insurance. A broad analysis of the elements and operation of property, casualty, health and life insurance.

FIN 3713 Real Estate Investment and Finance. Prerequisite(s): 3115. 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.

FIN 4063 Applied Financial Studies. Prerequisite(s): Consent of the instructor. Structured internship or field project with supporting academic study.

FIN 4113 Financial Markets and Institutions. Prerequisite(s): 3113, and ECON 3313 or concurrent enrollment in ECON 3313. Money and capital markets, flow-of-funds, commercial banks and other financial intermediaries.

FIN 4213 International Financial Management. Prerequisite(s): 3113 or consent of instructor. 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.

FIN 4223 Investments. Prerequisite(s): 3113. Various approaches to selecting and timing investment opportunities, e.g., common stocks, bonds, commodities and options. Modern concepts of portfolio theory.

FIN 4333 Financial Management. Prerequisite(s): 3115 or consent of instructor. Theories and practices of financial management, the value of a firm. A variety of teaching methods used in conjunction with readings and cases to illustrate financial problems and techniques of solution.

FIN 4363 Energy Finance. Prerequisite(s): 3113. 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.

FIN 4443 Banking Strategies and Policies. Prerequisite(s): 3113, and ECON 3313 or concurrent enrollment in ECON 3313. Theories and practices of bank asset management; banking markets and competition.

FIN 4453 Bank Decision Simulation and Analysis. Prerequisite(s): 3113 and 4443. 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.

FIN 4550 Selected Topics in Finance. 1-6 credits, max 6. Prerequisite(s): 3113 or consent of instructor. Advanced topics in finance. Topics are updated each semester.

FIN 4653 Bond Markets. Prerequisite(s): 3113 and 4643. 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.

FIN 4763 Financial Futures and Options Markets. Prerequisite(s): 3113 and 4223. 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.

FIN 4815 Portfolio Management. Prerequisite(s): 3113 and 4223 with a grade of “C” or better and consent of advisor. 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.

FIN 4843 Risk Management. Prerequisite(s): 3113 and 4223. Introduction to
relevant analytical tools necessary for the effective management of risk.

FIN 4913 Advanced Risk Management. Prerequisite(s): 3113, 4223, 4763, and 4843 (with a grade of "C" or better). Applications of risk management concepts and skills for the development of programs to manage risk exposures.

FIN 5000 Master’s Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Good standing in Master of Science in quantitative financial economics program and consent of program coordinator. Research and thesis for master’s students.

FIN 5010 Finance Projects and Independent Studies. 1-6 credits, max 6. Prerequisite(s): Good standing in graduate program and consent of project adviser and consent of department head. Graduate projects and independent study in finance.

FIN 5013 Business Finance. Prerequisite(s): Admission to a SSB graduate program and FIN 5013 or equivalent and ACCT 5183 or equivalent or consent of the MBA director or instructor. Concepts and theories applicable to the financial administration of a firm. Cases, problems and readings illustrate various financial problems and techniques of solutions.

FIN 5153 Corporate Financial Strategy. Prerequisite(s): 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. 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.

FIN 5213 International Business Finance. Prerequisite(s): 5013. Theories and financial management practices unique to business firms which operate in, or are influenced by, an increasingly global economy.

FIN 5223 Investment Theory and Strategy. Prerequisite(s): Admission to a SSB graduate program, FIN 5013 or the consent of MBA director or the instructor. Selected investment and advanced portfolio management techniques. Case problems and readings address the advantages and disadvantages of various corporate governance practices.

FIN 5550 Special Topics in Finance. 1-6 credits, max 12. Prerequisite(s): Consent of instructor. Theoretical and applied aspects of specialized financial areas. Evaluation of models, current trends and problems.

FIN 5763 Derivative Securities and the Management of Financial Price Risk. Prerequisite(s): 5013 or consent of instructor. 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.

FIN 5773 Financial Engineering. Prerequisite(s): MATH 4513 and FIN 5763 or consent of instructor. Techniques for the design, development and implementation of innovative financial instruments and processes to the formulation of creative solutions of problems in finance.

FIN 5853 Quantitative Financial Applications. Prerequisite(s): 5223 and consent of head of the department. Application of financial solution techniques through directed case work in appropriate business and public sector settings. Simulation, small group instruction and field-based experiences.

FIN 6053 Financial Theory and Corporate Policy. Prerequisite(s): Consent of the instructor. Theoretical and empirical underpinnings of modern corporate finance.

FIN 6660 Seminar in Finance. 3-6 credits. max 12. Prerequisite(s): Consent of instructor. Advanced research with emphasis on theoretical problems and solutions. Selected topics covered.

Fire Protection and Safety Technology (FPST)

FPST 1213 Fire Safety Hazards Recognition. "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 business and industry.


FPST 2050 Studies in Loss Control. 1-4 credits, max 6. Prerequisite(s): Consent of instructor and adviser. Problems in applied fire protection technology, occupational safety, industrial hygiene or hazardous materials management of particular interest to the loss control specialist.

FPST 2153 Fire Protection Management. Applied human relations, technical knowledge and skills for achieving optimum effectiveness from a fire protection organization.

FPST 2243 Design and Analysis of Sprinkler Systems. Lab 3. Prerequisite(s): 1373, 2483, ENGR 1322 or GENT 1153. Detailed current standards for selection, design, installation, operation and maintenance of automatic fire suppression systems. Laboratory problems on applicable theoretical principles.

FPST 2344 Elements of Industrial Hygiene. Lab 3. Prerequisite(s): CHEM 1225. Toxic or irritating substances, physical, biological, ergonomic and other occupational stress factors causing employee illness or discomfort. Environmental pollution sources and controls.

FPST 2483 Fire Protection Hydraulics and Water Supply Analysis. Lab 3. Prerequisite(s): 1373 and MATH 1513. 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.

FPST 2650 Technical Problems and Projects. 1-4 credits, max 4. Special problems or projects assigned by advisers with the approval of the department head. A comprehensive written report or equivalent creative effort.

FPST 3013 Safety Management. 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.

FPST 3113 Advanced Extinguishing Systems Design and Analysis. Prerequisite(s): 2483, 2243. Automatic fixed fire-extinguishing systems and water supply systems. Emphasis upon computer assistance through use of existing design programs.

FPST 3143 Structural Design for Fire and Life Safety. Prerequisite(s): Grade of "C" or better in 1213, 1224, 2483 and GENT 2323 or ENSC 2113. Building construction standards and codes to assure maximum life and property safety from fires, explosions and natural disasters. Egress design specifications, occupancy and construction classifications and fire protection requirements for building construction and materials.

FPST 3213 Human Factors in Accident Prevention. Prerequisite(s): 2344, 3013 and GENT 2323 or ENSC 2113. Human factors and workplace ergonomics as it relates to the prevention of accidents and workplace injuries. Fundamentals and techniques of task analysis.

FPST 3233 Radiological Safety. Lab 2. Ionizing radiation problems; detection and measurement, shielding and exposure limiting, radiation health aspects, storage, handling and disposal.

FPST 3373 Fire Dynamics. Lab 3. Prerequisite(s): Admission to Professional School and grade of "C" or better in CHEM 1314 or CHEM 1215 or CHEM 1225, ENGR 1412 or CS 1103 or EET 1003, GENT 2323 or ENSC 2113. MATH 2253, MATH 2253, STAT 2013 or STAT 4013 or STAT 4033, and FPST 2483. Fundamental thermodynamics of combustion, fire chemistry and fire behavior. The physical evidence left by fire for investigation and the use of computer models to study fire behavior.

FPST 3383 Building Electrical Systems. Prerequisite(s): 1373. 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.

FPST 3713 Hydraulic Design of Automatic Sprinkler Systems. Prerequisite(s): 1373, 2483, MATH 1513. Hydraulic calculation technique for the design and analysis of automatic sprinkler fire extinguishing systems.

FPST 3723 Industrial Fire Pump Installations. Prerequisite(s): 2483, MATH 1513. Applications, design and analysis of industrial fire pump installations. Graphical analysis of fire pump contributions to existing fire protection water supply systems emphasized.

FPST 3733 Sprinkler System Design for High Piled and Rack Storage. Prerequisite(s): 2243, MATH 1513. Specific design techniques for sprinkler system protection of commodities stored in solid piles or racks over 12 feet in height.

FPST 4050 Special Problems in Loss Control. 1-4 credits, max 6. Prerequisite(s): Consent of department head. Special technical problems in fire protection and safety.

FPST 4143 Industrial Ventilation and Smoke Control. Prerequisite(s): Admission to Professional School; grade of "C" or better in 2344 and 2483 and 3373. Principles of dilution and comfort ventilation; heat-cold stress control.
system design, contaminant control; ventilation system testing and guidelines. Design and analysis of smoke management systems in buildings for survivability and safe egress. Assessment of human health hazards posed by smoke. Performance characteristics of smoke control systems.

**FPST 4153 Issues in Local Government and Fire Services.** Prerequisite(s): 2344, 3013, 3143, and STAT 2013 or 4013 or 4033 or consent of instructor. Fire and Safety technologies as an agent, recognize and control hazards. Fault Tree, HazOp, FMEA and other process safety techniques.

**FPST 4333 System and Process Safety Analysis.** Lab 3. Prerequisite(s): 2344, 3013, 3143 and STAT 2013 or 4013 or 4033 or consent of instructor. Fire and safety techniques to anticipate, recognize and control hazards. Fault Tree, HazOp, FMEA and other process safety techniques.

**FPST 4383* Fire and Safety Simulation Modeling.** Prerequisite(s): Admission to Professional School; grade of “C” or better in 3373 and STAT 2013 or STAT 4013 or STAT 4033 or instructor consent. Zone and field simulation modeling techniques for building fire safety assessment. Monte Carlo models, probability distributions for risk modeling, input data for risk modeling, and risk management software. Analysis and interpretation of simulation modeling output. Simulation model is required for successful course completion.

**FPST 4403 Hazardous Materials Incident Management.** Lab 3. Prerequisite(s): 2023, 2547, CHEM 1225. An interdisciplinary approach to hazardous materials incident management. Legislative requirements. Emphasis on comprehensive safety and health program compliance relating to hazardous materials incidents or waste sites. Regulatory code activities, transport-related inspections, incident modeling, and use of environmental safety software for problem solving and documentation.

**FPST 4684 Industrial Loss Prevention.** Lab 3. Prerequisite(s): Prior or concurrent enrollment in all other required FPST courses and ENGL 3323 or consent of instructor. Specific industrial processes, equipment, facilities, and work practices for detecting and controlling potential hazards.

**FPST 4993 Advanced Fire and Safety Problems.** Prerequisite(s): Prior or concurrent enrollment in all other required FPST courses. Selected problems in the fire, occupational safety, occupational health and industrial security areas. Research or state-of-the-art technologies to prevent or correct such problems. Selected topics covered.

**Fire Safety and Explosion Protection (FSEP)**

**FSEP 5113* Fire and Explosion Hazard Recognition.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. 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 or explosion.

**FSEP 5123* Fire and Explosion Detection and Mitigation.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. Chemistry and physics of energetic materials and their relationship to their surroundings. The requirements for detection, suppression, and mitigation of energetic materials.

**FSEP 5133* Principles of Industrial and Process Safety.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. Systematic assessment of industrial operations and processes to identify and mitigate related hazards. Improve skills in qualitative and quantitative analysis such as fault trees, HAZOP studies, and MORT charts.

**FSEP 5143* Structural Design for Fire and Life Safety.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. 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 and explosion protection requirements for building construction and materials.

**FSEP 5153* Critical Infrastructure Vulnerability and Risk.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. Identification of critical infrastructure and the societal risk caused by its vulnerability. Methods of analyzing threats facing critical infrastructure components and the methods of minimizing those risks.

**FSEP 5163* Principles of Industrial, Physical and Building Security.** Prerequisite (s): 30 credit hours of STEM coursework or instructor consent. Introduction to homeland security and the concept of integrated physical protection. Principles of industrial and building security, security management systems, security standards, and securing against asymmetrical threats.

**Food Science (FDSC)**

**FDSC 1133 Fundamentals of Food Science.** Food industry from producer to consumer and the current U.S. and world food situations.

**FDSC 2103 (D) Regional Diversity in Food Production, Selection and Consumption.** 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.

**FDSC 2253 Meat Animal and Carcass Evaluation.** Lab 2. Prerequisite(s): ANSI 1124. 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)

**FDSC 3033 Meat Technology.** Lab 3. 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 3333.

**FDSC 3113 Quality Control.** Lab 2. Prerequisite(s): Introductory microbiology and organic chemistry. Application of the principles of quality control in food processing operations to maintain the desired level of quality.

**FDSC 3154 Food Microbiology.** Lab 4. Prerequisite(s): Introductory microbiology and organic chemistry. 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 MSCI 3154)

**FDSC 3232 Advanced Meat Evaluation.** Lab 4. Prerequisite(s): 2253. Advanced evaluation of carcasses and wholesale cuts of beef, pork and lamb. (Same course as ANSI 3232)

**FDSC 3310 Advanced Competitive Evaluation.** Lab 6. Prerequisite(s): Consent of instructor. Advanced instruction in animal and/or product evaluation. Some opportunities for food competition and earning awards for students competing on collegiate judging teams. (Same course as ANSI 3310)

**FDSC 3333 Meat Science.** Lab 3. Prerequisite(s): ANSI 2253, CHEM 1215 or equivalent. Anatomical and basic chemical and physical characteristics of meat animals studied. The application of scientific principles to the processing and economic utilization of meat animals, as well as in the manufacture of meat products emphasized in the laboratory. (Same course as ANSI 3333*)

**FDSC 3373 Food Chemistry I.** Lab 2. Prerequisite(s): ANSI 3543 or organic chemistry. Basic composition, structure, and properties of foods and the chemical changes or interactions that occur during processing and handling.

**FDSC 3603 Processing Dairy Foods.** Lab 2. Prerequisite(s): Organic chemistry. 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.

**FDSC 4123* Principles of Food Engineering.** Prerequisite: 1513. 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 MSCI 4123)

**FDSC 4333* Processed Meat.** Lab 3. Prerequisite(s): ANSI 3033 or 3333. 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*)

**FDSC 4373 Food Chemistry II.** Lab 2. Prerequisite(s): 3373. Chemical/biochemical mechanisms that affect the structure and properties of foods during processing and handling. No credit for S373.

**FDSC 4763* Analysis of Food Products.** Lab 2. Prerequisite(s): Organic chemistry. Application of quantitative chemical and physical methods of analysis to the examination of foods.

**FDSC 4900 Special Problems.** 1-6 credits, max 6. Prerequisite(s): Consent of instructor. A detailed study of an assigned problem by a student wishing additional information on a special topic.

**FDSC 4910 Food Industry Internship.** 1-12 credits, max 12. Prerequisite(s): Consent of instructor. 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.

**FDSC 5000* Master’s Research and Thesis.** 1-6 credits, max 6. Prerequisite(s): Consent of major adviser. Research for Master of Science degree in Food Science planned, conducted and reported under guidance of major adviser.

**FDSC 5120* Special Topics in Food Science.** 1-4 credits, max 8. Prerequisite(s): Consent of major adviser. Research for Master of Science degree in Food Science planned, conducted and reported under guidance of major adviser.

**FDSC 5213* Advances in Meat Science.** Prerequisite(s): BIOC 4113 and ZOOL 4034 or equivalent. 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*)

**FDSC 5300* Food Science Seminar.** 1 credit, max 3. Prerequisite(s): Graduate standing. Maximum two credit hours for M.S. degree. Maximum three credit hours for Ph.D. degree. Critical review or studies of the scientific research literature related to the field of food science. Oral reports or group discussions.

**FDSC 5333* Carcass Value Estimation Systems.** Prerequisite(s): Graduate classification. Analysis of scientific literature regarding carcass composition, quality and palatability. Overview of technology used to evaluate carcass quality factors. (Same course as ANSI 5333*)

**FDSC 5373* Advanced Food Laboratory.** Lab 2. Prerequisite(s): FDSC 3373.
Chemical/biochemical mechanisms that affect the structure and properties of foods during processing and handling.

FDSC 5393* Issues in Food Science. Prerequisite(s): Graduate classification. 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.

FDSC 5553* Interpreting Animal and Food Science Research. Prerequisite(s): STAT 5013 or concurrent enrollment. Critical evaluation and knowledgeable communication on the design, analyses, and reporting of animal science and food science research. (Same course as ANSI 5553)

FDSC 6000* Doctoral Research and Dissertation. 1-10 credits, max 30. Prerequisite(s): MS degree or consent of major adviser. Independent research for PhD in Food Science planned, conducted and reported in consultation of a major professor.

Foreign Languages and Literature (FLL)
The Department of Foreign Languages and Literatures offers courses under the prefix FLL, and in the following languages each of which has its own prefix: French, German, Greek, Japanese, Latin, Russian and Spanish. These languages are listed in alphabetical order.

FLL 1000 Special Studies in Foreign Languages and Literatures. 1-10 credits, max 10. Special studies in areas not regularly offered; basic level. Not for native speakers per University Academic Regulation 4.9.

FLL 2000 Special Study in Foreign Languages and Literatures: Intermediate, 1-5 credits, max 10. Prerequisite(s): 10 hours or equivalent in target language (applies only to language course). Special study in areas other than those offered in regular program; intermediate level. Not for native speakers per University Academic Regulation 4.9.

FLL 2103 (H) Masterworks of Western Culture: Ancient and Medieval. Ideas and values of Western culture as revealed through literary, artistic, historical, and philosophical contexts from Greek, Roman, and Medieval periods.

FLL 2203 (H) Masterworks of Western Culture: Modern. Ideas and values of Western culture as revealed through literary, artistic, historical, and philosophical contexts from the Renaissance to the Modern period.

FLL 2443 (I) Languages of the World. 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)

FLL 3103 (H) Hispanic Literature in Translation. Readings of significant works from Spanish and Spanish-American literatures in English translation. Does not apply to major or minor in Spanish.

FLL 3113 (H) French Literature in Translation. Readings of significant works from French literature in English translation. Does not apply to a major or minor in French.

FLL 3500 Specialized Study in a Modern Foreign Language. 1-20 credits, max 20, Lab 1-5. Prerequisite(s): Consent of instructor. Instruction and/or tutorial work in a modern foreign language other than those offered in a major program.

FLL 4000 Specialized Studies in Foreign Languages and Literatures. 1-9 credits, max 9, Lab 1-9. Prerequisite(s): Junior standing or consent of instructor. Individual guided study, tutorial or seminar on specially selected topics in a foreign language or literature.

FLL 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

FLL 5210* Graduate Studies in Foreign Languages. 1-6 credits, max 20. Prerequisite(s): 15 upper-division hours in the language. Graduate studies in foreign language or literature.

Forensic Sciences (FRNS)

FRNS 5000* Research and Thesis. 1-6 credits, max 6, Lab 1-6. Prerequisite(s): Consent of major adviser. Research in forensic sciences for MS degree.

FRNS 5013* Survey of Forensic Sciences. Prerequisite(s): Consent of instructor. 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.

FRNS 5023* Questioned Document Examination. Lab 2. Prerequisite(s): 5013 or concurrent enrollment. Functions of questioned document examiners, beyond document analysis to relating services and issues. History of questioned documents, handwriting and handwriting, process for obtaining exemplars, types of document examination (e.g., typewriting, mechanical processes, includes writing, obliterated writing, inks, currency, erasures, physical matches, and post markers). Collection and preservation of evidence as well as courtroom procedures. (This course does not train the student as a document examiner and in no way certifies or qualifies the student to conduct questioned document examination at the conclusion of this course.)

FRNS 5033* Theory and Practice of Forensic Handwriting Examination. Prerequisite(s): 5023. Theoretical and practical aspects of handwriting as forensic evidence. Production of normal and false handwriting, variables in handwriting production, standards of comparison, identification theories, examination methodologies, expression of conclusions, characterization and validation of examiner skills, instruction in handwriting expertise, and challenges to professional practice.

FRNS 5043* Technical Aspects of Forensic Document Examination. Prerequisite(s): 5023. Basic theory in visual examination of questioned documents. Visual and color theory, measuring tools, instruments, simple microscopy, and photographic techniques. Technical description, theory, operation and practical use of various instrumentation used in the field such as the Electrostatic Detection Apparatus (ESDA) and Video Spectral Comparator (VSC).

FRNS 5053* The Historical Aspects of Forensic Document Examination. Prerequisite(s): Graduate standing. This course presents historical aspects of forensic document examination. It covers development of handwriting, the acceptance of document examination expertise in Britain and North America, the early luminaries and famous cases.

FRNS 5063* Ethical Research in Scientific Writing. Prerequisite(s): Permission from research adviser. 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. Adviser guidance on some assignments required.

FRNS 5073* Quality Assurance in Forensic Science. Prerequisite(s): Admission to program. 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 ad policies, use of appropriate standards and controls, and validation methods for establishing an effective quality assurance program in the laboratory.

FRNS 5083* Ethics in Forensic Leadership. 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.

FRNS 5090* Internship in Forensic Sciences. 1-3 credits, max 3. Prerequisite(s): 5073, initial course in chosen specialty, permission of adviser and program director, and letter of agreement or contract with designated facility in 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 and four credit hour enrollment; eight hours per credit required for full semester.

FRNS 5213* Molecular Biology for the Forensic Scientist. Prerequisite(s): Admission to the program. Develops a solid foundation in knowledge of molecular biology for understanding the concepts of genetic marker analysis, especially DNA typing.

FRNS 5223* Forensic Biology. Prerequisite(s): 5013 and 5213 or instructor permission. Covers derivation of forensic evidence from biological sources for criminal and civil investigations. Includes progression of laboratory testing to identify human body fluid and its source, detection and characterization of stains or fluids and genetic marker testing.

FRNS 5242* Population Genetics for the Forensic Scientist. Prerequisite(s): Population genetics relevant to DNA analysis technologies, human identity of 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 individual.

FRNS 5282* Methods in Forensic Sciences. Lab 4. Prerequisite(s): Permission of instructor. 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.

FRNS 5313* Forensic Engineering and Technology, Lab 2. Prerequisite(s): 5013; college-level chemistry and biology; knowledge of physics, calculus, and spreadsheet calculations. Review of disciplines of chemistry, biology, physics, math and computer science as regularly applied in support of forensic engineering, damage analysis, and technology analysis. Case studies ranging from complex “multi-event” accidents to small but individually serious accidents.

FRNS 5323* Forensic Microbiology. Prerequisite(s): Permission of instructor
and basic microbiology recommended. 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.

FRNS 5413* Forensic Pathology and Medicine. Prerequisite(s): Consent of instructor. Medico-legal investigation of death and injury due to natural causes, accidental trauma, suicide, homicide, drowning, asphyxia, asphyxia, and electrical injuries. Mental illness, mental disorders, and the courts. Pediatric deaths; rape investigation; injury analysis; identification of toxicological causation by death means; anthropological 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 standard boards and scientific/technical working groups.

FRNS 5513* Forensic Bioscience. Prerequisite(s): 5013; college-level chemistry and biology. 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.

FRNS 5523* Forensic Toxicology. Introduction of fundamental aspects of forensic toxicology and emphasis on major subfields of postmortem forensic toxicology, human performance pharmacology and forensic drug testing. Examination of methodologies and analyses associated with these three major subfields.

FRNS 5533 Drug Toxicity. 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.

FRNS 5543* Advanced Forensic Toxicology. Prerequisite(s): 5523. 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.

FRNS 5613* Criminalistics and Evidence Analysis. Lab 2. Prerequisite(s): Admission to program. 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.

FRNS 5622* Advanced Criminalistics. Lab 4. Prerequisite(s): 5073, 5613, 5653 and basic course work in specialty. Application of strategies/techniques for effective crime scene investigation in laboratory or mock crime scene setting. Covers use of CSI's 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.

FRNS 5653* The Law and Expert Evidence. Prerequisite(s): Admission to program. Review of ways that the law, particularly the law of evidence, affects the work of the forensic scientist. The beginning of the first officer at the crime scene, through the legal process, and 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 withstand a trial.

FRNS 5713* Forensic Psychology. Lab 2. Prerequisite(s): Consent of faculty. 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 and 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.

FRNS 5723* Advanced Forensic Psychology. Prerequisite(s): 5013 & 5713. Expands on topics covered in FRNS 5713. Covers function of the mental health professional in crime scene and in medicolegal 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.

FRNS 5743* Seminar in Forensic Psychology. Prerequisite(s): permission of instructor. Capstone seminar course for all subspecialty tracks in forensic psychology. Builds upon prior coursework to prepare student for comprehensive final examinations in area of specialization and provide a theoretical background suitable for research leading to publication, presentation, or a thesis or dissertation.

FRNS 5913* Forensic Accounting and Fraud Investigation. Prerequisite(s): 5013. Introduction of concepts and tools used in the fields of forensic accounting and financial fraud investigations. Issues of after ego, constructive trusts, fraudulent conveyances, accounting liability, business valuations, lost profits, damages, marital dissolution issues and bankruptcy. Aspects of fraud investigation, including overview of fraud in U.S., types and methods of fraud perpetration, red flags of fraud perpetrators, money laundering, and international fraud investigations. Upon completion student will have an understanding of accounting methods used in a litigation services/fraud investigation environment and knowledge of basic research and analytical tools necessary for drafting expert reports in accordance with Federal Rules of Civil Procedure.

FRNS 5943* Forensic Management and Organizational Development. Prerequisite(s): 5013. 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.

FRNS 5960* Forensic Problem Solving through Applied Research. Prerequisite(s): Permission from instructor and faculty advisor. Examines mixed research methods and methodologies applicable to the forensic sciences. The course launces work toward a thesis or creative component, including the development of a purpose statement, research question and/or hypothesis as well as construction of an introduction and literature review.

FRNS 5970* Directed Readings in Forensic Sciences. 1-3 credits, max 3. Prerequisite(s): Permission of instructor and faculty advisor. Provides guided reading under direction and supervision of the instructor; in-depth, independent study on an identified topic relative to forensic sciences.

FRNS 5980* Non-Thesis Creative Component in Forensic Sciences. 1-3 credits, max 3. Prerequisite(s): Permission of instructor and faculty advisor; 5983 (concurrent enrollment allowed). Provides final-semester capstone experience for the non-thesis graduate student through independent research or project management. Culminates with presentation of results in writing and in a public forum, which may be via electronic delivery or in person.

FRNS 5990* Special Topics in Forensic Sciences. 1-3 credits, max 15. Prerequisite(s): Permission of instructor and tools used for crime scene investigation in laboratory or mock crime scene setting. Covers use 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.

French (FREN)

FREN 1115 Elementary French I. Lab 1.5. 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.

FREN 1225 Elementary French II. Lab 1.5. Prerequisite(s): 1115 or equivalent competence. Continuation of 1115. Not for native speakers per University Academic Regulation 4.9.

FREN 2112 (I) Intermediate Reading and Conversation I. Lab 1. Prerequisite(s): 1225 or equivalent competence. (May have been gained in high school) Reading and discussion of simpler French texts, mostly cultural. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9.

FREN 2113 Intermediate French I. Lab 1. Prerequisite(s): 1225 or equivalent competence. (May have been gained in high school) Reading and discussion of simpler French texts, mostly cultural. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9.

FREN 2232 (I) Intermediate Reading and Conversation II. Lab 1. Prerequisite(s): 2112 or equivalent competence. (May have been gained in high school) 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.

FREN 2233 Intermediate French II. Lab 1. Prerequisite(s): 2113 or equivalent competence. (May have been gained in high school) Continuation of 2113. May be taken concurrently with other 2000-level French courses. Not for native speakers per University Academic Regulation 4.9.

FREN 3073 French Conversation. Prerequisite(s): 2232 and 2233 or equivalent. Colloquial speech, with discussion of French newspapers and magazines. Practice in brief public address in French.

FREN 3203 Advanced Written Expression. Prerequisite(s): 20 hours of French or equivalent. Practice in composition and stylistics, designed to bring students up to a high level of proficiency in writing.

FREN 3213 Advanced Grammar. Prerequisite(s): 20 hours or equivalent proficiency. Conceptual framework and presentation of the finer points of French grammar.
FREN 3343 Business French. Prerequisite(s): 2232 and 2233 or equivalent. Applied French for students in commercial and technical fields. Overview and strategies of business and economic climate in France.

FREN 3463 Advanced Diction and Phonetics. Lab 1. Prerequisite(s): 2232 and 2233 or equivalent. Required course for teacher certification. French speech sounds and intonation patterns, with practice to improve the student's pronunciation.

FREN 3853 Introduction to Analysis of French Literature. Prerequisite(s): 2232 and 2233 or equivalent. Close reading of shorter texts in a variety of literary genres, with presentation of French verisimilitude and literary terminology.

FREN 4153 History of French Literature I. Prerequisite(s): 20 credit hours of French or equivalent. Historical survey of French literature before 1700, with reading of representative texts.

FREN 4163 History of French Literature II. Prerequisite(s): 20 credit hours of French or equivalent. Historical survey of French literature of the eighteenth century, with reading of representative texts.

FREN 4173 History of French Literature III. Prerequisite(s): 20 credit hours of French or equivalent. Historical survey of French literature of the nineteenth century, with reading of representative texts.

FREN 4183 History of French Literature IV. Prerequisite(s): 20 credit hours of French or equivalent. Historical survey of French literature of the twentieth century, with reading of representative texts.

FREN 4333 Background of Modern French Civilization. Prerequisite(s): 20 credit hours of French or equivalent. General overview of French history, geography, and culture, with emphasis on art, music, and intellectual movements. Capstone course.

FREN 4550 Directed Studies in French. 1-3 credits, max 9. Lab 1-2. Prerequisite(s): 20 credit hours of French or equivalent. Individual or group study of French language or literature.

FREN 4573 Modern French Theater. Prerequisite(s): 20 credit hours of French or equivalent. Analysis of French plays from the 19th and 20th centuries.

FREN 5110 Advanced Studies in French. 1-3 credits, max 9. Prerequisite(s): 15 credit hours of upper-division French. Discussion or research in specialized topics.

Gender and Women's Studies (GWST)

GWST 2113 (S) Transnational Women's Studies. 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.

GWST 2123 (D,H) Introduction to Gender Studies. 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.

GWST 3450 Topics in Gender Studies. 1-3 credits, max 12. Prerequisite(s): 2113 or 2123 or permission of instructor. Suggested topics include: women and health, women and science, women and religion.

GWST 3513 (D) Theorizing Sexualities. Prerequisite(s): 2113 or 2123. 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.

GWST 3613 (D) Race and Reproduction in the U.S. Prerequisite(s): 2113 or 2123 recommended. An interdisciplinary examination of the inextricable relationship between race relations and reproductive issues. Issues explored include paternalism, sterilization abuse, criminalizing pregnancy, nativism and nationalism, eugenics, the role of women in campaigns for reproductive justice, and representations of motherhood.

GWST 3713 (D) Gender and Representation. 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.

GWST 4013* Approaches to Feminist Research. Prerequisite(s): 2113 or 2123 or consent of instructor. Examination of the ethics and epistemologies of methodologies and theoretical frameworks most conducive to feminist analysis. This course prepares students to conceptualize their own research projects.

GWST 4113* Feminist Theories. Prerequisite(s): 2113 or 2123 or consent of instructor. 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.

GWST 4503* Theorizing Men and Masculinities. Prerequisite(s): 4113 or permission of instructor. Examines the roles of men in various cultural contexts, the historical development of manhood as an ideal, and theories of masculinities.

GWST 4950* Special Topics in Global Feminism. 3 credits, max 6. Prerequisite(s): 2113 or 2123 or permission of instructor. 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.

GWST 4990* Directed Readings in Gender Studies. 1-3 credits, max 12. Prerequisite(s): Permission of instructor. Examines gender studies issues and topics.

GWST 5103* Gender and Sexuality. This course offers an interdisciplinary survey of major works and key concepts in the field of Gender and Women's Studies.

GWST 5300* Seminar in Gender and Women's Studies. 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.

General Engineering (GENG)

GENG 4010 Senior Design Project. 2-4 credits, max 4. Prerequisite(s): Senior standing in general engineering. Capstone design project through independent application of engineering principles and concepts from the disciplines covered in earlier course work.

General Technology (GENT)

GENT 1153 Engineering Graphics. Lab 2. Sketching, manual drafting and computer-aided generation of engineering drawings to ANSI standards. Interpretation of 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.

GENT 1223 Manufacturing Processes. Lab 3. Basic methods and processes of fabrication with emphasis on manufacturing operations, metrology and conventional machining.

GENT 2233 Statics. Prerequisite(s): MATH 2123 or 2144 and PHYS 1114 or 2014. Forces acting on bodies at rest; forces, moments of force, distributed forces, reactions, free-body diagrams, friction, internal forces and moments of inertia. Applications.

GENT 2650 Technical Projects. 1-4 credits, max 4. Prerequisite(s): Completion of three semesters' work in a technical institute curriculum. 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.

GENT 3123 Applied Analysis for Technology. Prerequisite(s): MATH 2133 or equivalent. Applications of elements of matrix algebra, ordinary differential equations, and infinite series to problems in engineering technology.

GENT 3323 Strength of Materials. Prerequisite(s): GENT 2323 or ENSC 2113 and MATH 2123 or 2144. Stress and strain and their relation to loads. Axial, torsional and bending loads, beam deflection, columns and combined stresses. Applications emphasized.

GENT 3433 Basic Thermodynamics. Prerequisite(s): MATH 2123 or 2144 and PHYS 1114 or 2014. Basic scientific principles of energy and the behavior of substances as related to engines and systems. Gas laws, vapors and engine cycles.


Genetics (GENE)

GENE 5102* Molecular Genetics. Prerequisite(s): BIOL 3563 or MIRC 3033 and one course in genetics or consent of instructor. An introduction to molecular genetics on the graduate level.

Geography (GEOG)

GEOG 1113 (LS) Introduction to Cultural Geography. Introduction to Cultural Geography. A thematic approach to the study of human groups and their interaction with the physical environment, including agricultural practices, demographic trends, political behavior, religious beliefs, language patterns, folk and popular cultures, ethnicity and ethnic landscapes, urbanization and industrialization.


GEOG 2253 (LS) World Regional Geography. The world's major culture regions, with emphasis on geographic aspects of contemporary economic, social and political relationships with the physical environment.

GEOG 2344 (LN) Digital Tools for Environmental Exploration. Lab
2. This course provides an introduction to the fundamental concepts of environmental problem-solving through the use of digital geographic technologies that have emerged in recent years. These technologies include the Global Positioning System (GPS), geographic information systems (GIS), satellite remote sensing as well as mainstream computer mapping technologies like Google Earth. Additionally, the course introduces students to the emerging use of social media, such as Twitter and Facebook, to collect environmental data and perform scientific research.

GEOG 3023 (N) Climatology. Characteristics and distribution of weather. The study of weather includes: the processes and phenomena that determine weather; the distribution of temperature, precipitation, pressure, and winds; and regional climates of the world. This course is the same as HIST 3053, POLS 3053 & RUSS 3053.

GEOG 3033 (N) Meteorology. A non-quantitative introduction to weather. Physical elements that cause and influence weather. Interpretation of weather maps and satellite imagery.

GEOG 3043 (I,S) Introduction to Central Asian Studies. 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 resources for the present and future. (Same course as HIST 3053, POLS 3053 & RUSS 3053)

GEOG 3063 Economic Meteorology. 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.

GEOG 3123 (D,S) Urban Geography. Locational aspects of urbanization; functions and relations among cities and between cities and rural areas; internal structure of urban areas.

GEOG 3133 (I,S) Political Geography. 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, and geography.

GEOG 3153 (S) Conservation of Natural Resources. Problems and corrective methods of conservation of land, water, forests, wildlife, minerals, and people.

GEOG 3163 (S) Economic Geography. Processes significant to the spatial structure of economic systems. Production, consumption, and exchange activities examined in regard to location, distribution, and internal differences and spatial interaction patterns. Attention given to processes of change as well as to steady states.

GEOG 3173 (S) Cultural Geography. Geographic impact of human cultures. Emphasis on the concepts of social space, density, crowding, territoriality, diffusion, migration, environmental perception, and cultural landscape.

GEOG 3183 Transportation Geography. Basic concepts and theories of transportation geography, selected transportation models, and analysis methods related to spatial interactions, network analysis, allocation, and urban transportation planning.

GEOG 3243 (D,S) Geography of Indian Country. Systematic analysis of geographic patterns, processes, and issues peculiar to the lands of the indigenous peoples of the United States including American Indians, Alaskan Natives, and Native Hawaiians. Spatial interaction of federal policy and indigenous sovereignty.

GEOG 3333 (A) Spatial Analysis. Prerequisite(s): STAT 2013, 2023, 2053, 4013, or 4053. The utility and application of modeling and statistics to spatial problem solving. The role of quantitative methods in geographic research.

GEOG 3703 (S) Geography of Oklahoma. Geographic interpretation of physical, economic, historical, and scenic features.

GEOG 3713 (D,S) Geography of the United States and Canada. A regional analysis of the United States and Canada, including physical and cultural landscapes, population and migration trends, regional development, and natural resources. (U.S.-Canadian relations and global relations.

GEOG 3723 (I,S) Geography of Europe. Analysis of the physical and human geography of Europe, including the distribution of physical features and natural resources, patterns of population change, and the geographic background to Europe’s major contemporary social, political, economic, and environmental problems.

GEOG 3733 (I,S) Geography of Russia and Its Neighbors. A regional analysis encompassing cultural, economic, and physical features.

GEOG 3743 (I,S) Geography of Latin America. A real distribution and analysis of physical, cultural, and economic features of Latin America.

GEOG 3753 (I,S) Geography of Asia. Systematic interpretation of significant spatial patterns of man and natural environment. (Exclusive of the USSR)

GEOG 3763 (I,S) Geography of Africa. General patterns and impact of population, cultural heritage, and natural resources in Africa. Historic and contemporary relationships between Africa and Western civilization. Divergent perspectives (debate) on development, government and conflict in Africa.

GEOG 3783 (I,S) Geography of the Middle East and Southwest Asia. A regional analysis of the Arab, Persian and Turkic lands, including the biophysical environment, agriculture, resource use, cultural patterns, urbanization, economic development, hydropolitics, and conflict.

GEOG 3793 (I,S) Geography of Australia and the Pacific Realm. Systematic survey of Australia, New Zealand, and the island regions of Micronesia, Melanesia, and Polynesia including a study of human and environmental relations, factors affecting the spatial distribution of human groups and the activities, cultural diversity, and the way in which external involvement, both in the past and present, has shaped this region.

GEOG 3910 Applied Geographical Topics. 1-3 credits, max 6. Specialized physical, human, regional, or technical issues and trends in geography.

GEOG 4003 Natural Hazards and Society. 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.

GEOG 4023 (N) Geography of Arid Lands. Analysis of the physical process shaping the landscapes of deserts and areas around them, emphasizing the causes and effects of climatic change and human activities.

GEOG 4053 (N) Biogeography. Distribution of plants and animals and processes causing distribution. Human impact on biotic resources considered along with policy and management practices.

GEOG 4063 Geoarchaeology and Environmental History. 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, culture, and environment. This course is an analysis of the nature and distribution of grass-dominated ecosystems (grasslands, savannas, and grassy tundras) around the world with emphasis on 1) co-evolutionary development with climate, herbivore, fire, and humans, 2) the grass-dominated ecosystems around the world, and 3) the challenges faced by these ecosystems in the context of modern global climate change and human development. Meets with GEOG 5083. No credit for students with credit in GEOG 5083.

GEOG 4073 Climate Change: Past, Present, and Future. 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 5073. No credit for students with credit in 5073.

GEOG 4083 Geography of Grass-Dominated Ecosystems. This course is an analysis of the nature and distribution of grass-dominated ecosystems (grasslands, savannas, and grassy tundras) around the world with emphasis on 1) co-evolutionary development with climate, herbivore, fire, and humans, 2) the grass-dominated ecosystems around the world, and 3) the challenges faced by these ecosystems in the context of modern global climate change and human development. Meets with GEOG 5083. No credit for students with credit in GEOG 5083.

GEOG 4103 (H) Historical Geography of the United States. 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.

GEOG 4113* Cultural and Political Ecology. Focus on the relationship between culture and environment, people and place and how environments are politicized. Competing theories of human-environment interactions throughout history. The first part of the course focuses on theories of half of the course focuses on the human agency, diffusion, migration, adaptation, decision-making and agricultural change. The second part of the course focuses on cultural landscapes, perception, and politicized environments to explain current environmental issues.

GEOG 4123* Geographical Aspects of Urban Planning. Prerequisite(s): 3123. Spatial aspects of urban planning: development of planning theory, various planning tools, and specific problem areas such as urban renewal and urban transportation.

GEOG 4143* Geography of Travel and Tourism. 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.

GEOG 4153* Geography of Outdoor Recreation. 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.

GEOG 4163 Resource Management in the National Parks. 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.


GEOG 4213 (S) Sport, Place and Society. 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.

**GEOG 4223 (H) Geography of Music.** 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.

**GEOG 4233 Human Dimensions of Global Environmental Change.** Discusses the current 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 (luc). Special emphasis is on alternative, competing visions, and needs of developing countries within the context of economic development and global environmental change. Meets with 5233. No credit for students with credit in 5233.

**GEOG 4253 (D,H) Geographic Perspectives on American Women's Travel Accounts Then and Now.** Examination of American women's travel writing both past and contemporary to understand social practices involving both geography and gender associated with travel and tourism. Topics include: geographic imaginaries, identities, social norms and transgressions, constructing the “Other” and the tourist “gaze,” ideas of “home” and “away,” and mobilities of women, situating these ideas with place and “race.”

**GEOG 4273 Land Use Science.** 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 5273. No credit for students with credit in 5273.

**GEOG 4303* Applications of the Global Positioning System in Field Research.** Prerequisite(s): 2343. 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.

**GEOG 4313* Field Techniques and Geodata Collection.** Modern concepts and techniques for geographical analysis and research, including data acquisition and manipulation from field and secondary sources. Field trips.

**GEOG 4323* Computer Cartography.** Lab 2. Prerequisite(s): 2343 or consent of instructor. Fundamentals of map compilation and design using computers. Thematic mapping of both socioeconomic and natural resource information. Discussion and application of various map input techniques involving digitizers, scanners, and global positioning system receivers. 2-D and 3-D terrain representation.

**GEOG 4333 Remote Sensing.** Intermediate course in remote sensing focusing on principles of remote sensing, digital imagery from aerial photography, multispectral, thermal and microwave remote sensing, image processing techniques, and field data collection. Discussions will include applications to agriculture, climate, fisheries, forestry, geography, landscape architecture, planning, and wildlife management. Hands-on exposure to current image processing software. Meets with 5333. No credit for students with credit in 5333.

**GEOG 4343 Geographic Information Systems: Resource Management Application.** Lab 2. Prerequisite(s): 2343. Provides a theoretical and practical understanding of geographic information systems and its applications in natural resource management. Introduces industry standard 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 5323. No credit for students with credit in 5323.

**GEOG 4353* Geographic Information Systems: Socioeconomic Applications.** Lab 2. Prerequisite(s): 2343. 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.

**GEOG 4373* Spatial Analysis of Public Health.** Prerequisite(s): 2343. Qualitative and quantitative analysis of public health issues from two geographic perspectives: human environment and spatial. Topics include medical geography, disease mapping, spatial data for public health, and basics and applications of spatial statistics, geographic information system and remote sensing. Lectures are combined with case studies and lab illustrations throughout the course.

**GEOG 4383* Introduction to GIS Programming.** Prerequisite(s): GEOG 4203. Designed to provide students with an introduction to basic programming concepts and how such concepts specifically apply to GIS and other geographic applications. The course will cover some basic concepts, discuss Python and Model Builder for ArcGIS, KML/KMZ for Google Earth/Maps, and introduce some basic concepts of mobile mapping development in Android.

**GEOG 4510 Senior Project.** 1-3 credits, max 3. Lab 1-3. Prerequisite(s): Senior standing and consent of instructor. Independently designed projects involving laboratory work, field work, library research or a combination of these.

**GEOG 4600 (I) Geography Study Abroad.** 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.

**GEOG 4910 Topics in Geography.** 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Specialized physical, social and methodological topics in geography.

**GEOG 4930 Readings in Geography.** 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed readings on selected topics, regions or methods in geography.

**GEOG 4940 Undergraduate Cooperative Education Internship.** 1-3 credits, max 3. Prerequisite(s): Consent of departmental internship coordinator and undergraduate committee. 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.

**GEOG 4993 Senior Honors Thesis.** Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

**GEOG 5000* Thesis.** 1-6 credits, max 6. Prerequisite(s): Consent of adviser or major professor. Open only to students working on the master’s degree in geography.

**GEOG 5001* Professional Development in Geography.** Introduction and orientation to the graduate program in the Department of Geography.

**GEOG 5023* Geography of Arid Lands.** Analysis of the physical processes shaping the landscapes of deserts and areas around them, emphasizing the causes and effects of climatic change and human activities and including research and writing components.

**GEOG 5063* Geoarchaeology and Environmental History.** Theoretical and methodological aspects of environmental history, a discipline that aims at recovering field data for constructing environment-society relationships of the past. Key themes include climate change and human-induced land transformation as demonstrated through interdisciplinary research in different geographic contexts and cultural groups (hunter gatherers, agriculturalists, and urbanites) from around the world. Meets with 4063. No credit for students with credit in 4063.

**GEOG 5073* Climate Change: Past, Present and Future.** Aims at understanding and discussing the mechanisms of global climate change and how they have functioned in our past, in the recent decades an how scientists predict possible changes in the near and distant future. Meets with 4073. No credit for students with credit in 4073.

**GEOG 5083* Geography of Grass-Dominated Ecosystems.** This course is an analysis of the nature and distribution of grass-dominated ecosystems (grasslands, savannas, and grassy tundras) around the world with emphasis on 1) co-evolutionary development with climate, herbivore, fire, and humans, 2) the grass-dominated ecosystems around the world, and 3) the challenges faced by these ecosystems in the context of modern global climate change and human development. Meets with GEOG 4083. No credit for students with credit in GEOG 4083.

**GEOG 5113* Landscape Ecology.** Prerequisite(s): Graduate standing and BIOL 3034 or consent of instructor. 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 planning. Survey of quantitative methods used in landscape ecology.

**GEOG 5123* International Resource Management.** Prerequisite(s): Graduate standing. Spatial perspectives on the assessment and management of natural resources. The role of resources in world trade, security and international environmental concerns.

**GEOG 5140* Cultural and Historical Geography Seminar.** 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Development and critical analysis of research and theory in cultural and historical geography.

**GEOG 5150* Geography of Sport, Recreation, and Leisure Seminar.** 1-3 credits, max 3. This seminar is comprised of an advanced analysis of one or more topics in Sport Geography. The topics can involve physical, 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 related to sport geography.

**GEOG 5163* Resource Management in the National Parks.** Contemporary resource management issues in the National Parks. Focus on the role of resource management in the management of water, air, biotic and cultural resources. No credit for students with credit in 4163.

**GEOG 5183* Topics in Transportation Geography.** 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.
GEOL 5203* Writing Across the Discipline: Geographic Theses and Dissertations. Prerequisite(s): Permission of instructor. Addresses writing issues specific to the social sciences, including identifying an audience, finding a voice, engaging with a theoretical framework, organizing data, understanding differences in presenting qualitative and quantitative evidence, effectively communicating both, placing an argument, crafting creative introductions and persuasive conclusions, and compiling an effective bibliography.

GEOS 5233* Human Dimensions of Global Environmental Change. 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 4233. No credit for students with credit in 4233.

GEOS 5243* Geography of the World’s Indigenous Peoples. Prerequisite(s): Graduate standing and consent of instructor. A regional survey of indigenous assertions of cultural, political and economic self-determination outside the United States. National and claims, impact of regional development and environmental issues upon indigenous communities, and their efforts to establish geopolitical autonomy.

GEOS 5273 Land Use Science. 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 4273. No credit for students with credit in 4273.

GEOS 5303* Geographical Analysis I. Prerequisite(s): One course in statistics. Application of models and statistics to geographic problem solving.

GEOS 5323* Geographic Information Systems: Resource Management Application. Lab 2. Prerequisite(s): 2343. Provides a theoretical and practical understanding of geographic information systems (GIS) and natural resource management. Introduces industry popular GIS software for spatial and spatio-temporal data analysis. Explores specific conditions, requirements, and processing considerations that allow geospatial data to be manipulated for problem solving. Meets with 4343. No credit for students with credit in 4343.

GEOS 5333* Remote Sensing. Intermediate course in remote sensing focusing on principles of remote sensing, digital imagery from aerial photography, multispectral, thermal and microwave remote sensing, image processing techniques, and field data collection. Discussions will include applications to agriculture, climate, fisheries, forestry, geography, landscape architecture, planning, and wildlife management. Hands-on exposure to current image processing software. Meets with 4333. No credit for students with credit in 4333.

GEOS 5343* Advanced Geographic Information Systems: Resource Management Applications. Lab 2. Prerequisite(s): 4343. 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.

GEOS 5353* Advanced Geographic Information Systems: Socioeconomic Applications. Lab 2. Prerequisite(s): 4353. 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.

GEOS 5363* Enterprise Geographic Information Systems. Prerequisite(s): 4353 or equivalent. 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 map service website development.

GEOS 5393* Remote Sensing of Water Resources. Prerequisite(s): 2323 or 4333. 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.

GEOS 5403* Current Geographic Research. Prerequisite(s): Graduate standing in geography. Review of recent literature in light of current human and physical geography research themes.

GEOS 5413* History and Philosophy of Geography. Prerequisite(s): Graduate standing in geography. Identification and evaluation of major themes in geographical research and teaching.

GEOS 5423* Geographic Renderings in Qualitative Methods. Prerequisite(s): SCFD 5913 or SCFD 6123 or SOC 5273 or consent of instructor. 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.

GEOS 5450* Seminar in Geography. 1-6 credits, max 6. Prerequisite(s): Graduate standing in geography or consent of instructor. Specialized topics in geography.

GEOS 5510* Research Problems in Geography. 1-3 credits, max 6. Prerequisite(s): Consent of instructor.

GEOS 5700* Research Study Abroad. 1-3 credits. 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.

GEOS 5930* Readings in Geography. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed readings on selected topics, regions or methods in geography.

GEOS 5940* Graduate Cooperative Education Internship. 1-3 credits, max 3. Prerequisite(s): Consent of departmental internship coordinator and graduate committee. Practical experience in applying geographical concepts and tools to business or governmental problems. Emphasis on educational aspects of application of discipline-related tools to real-world problems. Credit not available for regular employment positions; must have fixed start/end dates.

GEOS 6000* Doctoral Dissertation Research. 1-12 credits, max 30. Prerequisite(s): Admission to candidacy and consent of major professor.

GEOS 6013* Seminar in Quaternary Paleoecology. Prerequisite(s): Graduate standing in geography or consent of instructor. Analysis and discussion of various aspects of research on the Quaternary period, emphasizing the roles played by climate, geomorphic processes, vegetation, soil and fauna.

GEOS 6110* Seminar in Cultural and Political Ecology. 3 credits, max 6. Prerequisite(s): Graduate standing in geography or consent of instructor. Study of the relationship between culture and environment and competing theories of human-environmental interactions and their applications to policy analysis. 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 the third world development, gender and resource management, cost, social and economic development, indigenous knowledge, natural disasters and environmental vulnerability.

GEOS 6120* Seminar in Urban Geography. 3 credits, max 6. Prerequisite(s): Graduate standing in geography or consent of instructor. Analysis of research on urban systems, internal morphology, urban problems and urban spatial behavior. Review and analysis of student research efforts.

GEOS 6130* Seminar in Political Geography, 3 credits, max 6. Prerequisite(s): Graduate standing in geography or consent of instructor. 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.

GEOS 6180* Seminar in Transportation Geography. 3 credits, max 6. Prerequisite(s): Graduate standing. 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.

GEOS 6210* Seminar in Historical Geography. 3 credits, max 6. Prerequisite(s): Graduate standing. Current epistemological issues and archival methodologies in historical geography.

GEOS 6303* Geographic Analysis II. Prerequisite(s): 5303. Advanced methods of spatial analysis, including spatial autocorrelation, geo-statistically weighted regression and related spatial analysis methods.

GEOS 6313* Mixed Methods in Field Research. Prerequisite(s): Graduate standing in geography or consent of instructor. 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.

GEOS 6333* Advanced Techniques in Image Analysis/GIS. Prerequisite(s): 4333 or 5333. Advanced techniques and applications of image processing and geographic information systems (GIS). Special topics include image registration, georeferencing, advanced image enhancements, advanced classifications, and advanced assessments. Special emphasis on problems pertaining to data capture, preprocessing and analysis of semester-long projects will be discussed.

GEOS 6910* Topics in Geography. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Specialized physical, social, and methodological topics in geography.

GEOS 6930* Readings in Geography. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Directed readings on selected topics, regions or methods in geography.

Geology (GEOL)
material resources, beneficial and hazardous natural processes, and the planetary and biological evolution of life. Lab investigations environmentally oriented.

**GEOL 1114 (L,N) Physical Geology.** Lab 2. 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. A background in pre-college science and math is recommended. **Field trip required.**

**GEOL 1224 Evolution of the Earth.** Lab 2. **Prerequisite(s):** 1014 or 1114 or BIOL 1114. A survey of the physical and biological history of the Earth from the coalescence of the solar system to the present. **Field trips required.**

**GEOL 2254 Practical Mineralogy.** Lab 2. **Prerequisite(s):** 1014 or 1114 and CHEM 1314 or 1414 completed with a grade of “C” or higher. 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.**

**GEOL 2364 Igneous and Metamorphic Petrology.** Lab 3. **Prerequisite(s):** 2254 completed with a grade of “C” or higher. Origin, occurrence, and classification of igneous and metamorphic rocks; hand-specimen and thin section identification. **Optional field trip.**

**GEOL 3004 Earth Science for Teachers.** Lab 3. **Prerequisite(s):** 1114 or equivalent. Teaching natural earth systems and their environmental impact. Use of an adaptation approach in organizing, presenting, and evaluating earth science concepts in the curriculum. **Field trips required.**

**GEOL 3014 Structural Geology.** Lab 3. **Prerequisite(s):** GEOL 1224 and PHYS 2144 or 2314 with a grade of “C” or higher. Behavior of earth materials during various deformatonal processes and analysis of the resulting structural features such as folds, faults and fractures. **Field trips required.**

**GEOL 3034 Principles of Stratigraphy and Sedimentology.** Lab 3. **Prerequisite(s):** 1224 and 2254 each with a grade of “C” or higher. 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; lithofacies and biostратigraphy; geochronology and chronostratigraphy; magnetic, seismic, and sequence stratigraphy; tectonic vs. climatic controls. **Field work required.**

**GEOL 3043 (N) Geology of the National Parks.** **Prerequisite(s):** 1014 or equivalent recommended. The geologic characteristics of national parks and scenic regions in North America and throughout the world. **Intended for non-majors.**

**GEOL 3073* Geomorphology.** Lab 2. **Prerequisite(s):** 1114 and MATH 2144 or concurrent enrollment. Study of land forms and the processes that form them, using topographic maps, air photos, remotely-sensed images, soils maps and field techniques. **Field trips required.**

**GEOL 3103 Paleontology.** Lab 3. **Prerequisite(s):** 1224 or consent of instructor. Basic principles of paleontology involving invertebrates, vertebrates and plants. Lab focused on the morphology, identification, paleoecology and biostatigraphy of marine invertebrates. **Field trips required.**

**GEOL 3413 Petroleum Geology for Engineers.** Lab 2. **Prerequisite(s):** MATH 2114 and CHEM 1414 or 1314 and PHYS 2114 or 2124. 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.

**GEOL 3503 Environmental Geology.** **Prerequisite(s):** 1114 or consent of instructor. 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.**

**GEOL 3546 Field Geology.** Lab 12. **Prerequisite(s):** 2364 and 3034 and 3037. Six weeks of field methods in geology. Required of all geology majors. **Transportation and room and board fees required.**

**GEOL 4023 Petroleum Geology.** **Prerequisite(s):** 3014 and 3034. Origin, migration and accumulation of petroleum, requirements for source rock, reservoir rock and traps. Structure and stratigraphy of selected oil fields. **Field trips required.**

**GEOL 4030 Geologic Field Investigation.** 1-3 credits, max 3. **Prerequisite: 1014 or 1114.** 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. No credit for students who have credit in 5030.**

**GEOL 4103* Introduction to Geophysical Exploration.** Lab 2. **Prerequisite(s):** PHYS 2114 and MATH 2113 completed with a grade of “C” or higher. 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.**

**GEOL 4113 Seismic Interpretation.** **Prerequisite(s):** GEOL 4103, 3014, and 3034 each with grade of “C” or higher. 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. Same course as GEOL 5213.**

**GEOL 4213* Plate Tectonics.** **Prerequisite(s):** 3014 with a grade of “C” or higher. 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.**

**GEOL 4300 Geology Colloquium.** 1 credit, max 2. **Prerequisite(s):** 15 credit hours in geology and junior status. **Discussion of selected topics in the geophysical sciences with emphasis on professional presentation practices.**

**GEOL 4303* Geophysical Field Methods.** Lab 2. **Prerequisite(s):** 4103. 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.**

**GEOL 4313 Introduction to Well Log Analysis.** Lab 2. **Prerequisite(s):** 3034 with a grade of C or better. **Introduction for undergraduate Geology majors to basic properties of wireline well logs, including identification of 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 5353.**

**GEOL 4323 Advanced Well Log Analysis for Engineers.** Lab 2. **Prerequisite(s):** PHYS 2114 or 3413 with a grade of “C” or higher. This is a core course for the Minor in Petroleum Engineering. **Course material builds on information to the prerequisite course Geology 4313.** 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.

**GEOL 4403 Geochemistry.** Lab 2. **Prerequisite(s):** 1014 or 1114 or consent of instructor; CHEM 1314 and CHEM 1515 or concurrent enrollment; MATH 1513 or above. Application of chemical principles to geological processes. Processes affecting the composition of surface and ground waters.

**GEOL 4453 Hydrogeology.** **Prerequisite(s):** PHYS 2114. **The water cycle and ground-water systems as well as general problems related to ground-water occurrence, quantity, quality and pollution. Field trip required.**

**GEOL 4463* Physical Hydrogeology.** Lab 2. **Prerequisite(s):** 4453 or similar; **PHYS 2114** **Physical groundwater 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.**

**GEOL 5153 Marine Geology.** **Prerequisite(s):** CHEM 1314 or equivalent; **PHYS 1114 or 2014 or equivalent; GEOL 3034 or equivalent.** All with grade of “C” or higher. **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 ocean sediments; paleoceanography; marine mineral resources; marine tectonics and oceanic history. **Same course as GEOL 5513.**

**GEOL 4543 Introduction to Exploration Seismology.** **Prerequisite(s):** 4103 and 4303. **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 5543.**

**GEOL 4573 Marine Biogeochemical Cycles.** **Prerequisite(s):** 1224 and 4403 and CHEM 1314. **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 5573.**

**GEOL 4753 Volcanology.** **Prerequisite(s):** 2364 completed with a grade of “C” or higher. Examination of volcanic processes, products, and structures on Earth and other terrestrial bodies. **Optional field trip. No credit for students with credit in 5573.**

**GEOL 4773 Planetary Geology.** **Prerequisite(s):** GEOL 1114 (required) and GEOL 3073 (recommended). **Geology of planets and planetary bodies, including geology, tectonics, geophysics, and geophysics; perspectives on exploration, and life in the universe.**

**GEOL 4981 Geoscience Internship.** **Prerequisite(s):** Consent of instructor. **Student participation in a research project during an internship in a Geoscience-related professional work setting. Graded on a pass/fail basis.**

**GEOL 4990 Special Problems in Earth Science.** 1-8 credits, max 8. **Prerequisite(s):** 25 hours of geoscience. **Permission of instructor.** **Incorporation of individually designed study projects involving assigned reading, library work, field work, laboratory work or a combination of these. Field trips may be required.**

**GEOL 4993 Senior Honors Thesis.** **Prerequisite(s):** Departmental invitation, senior standing, Honors Program participation. **A guided reading and research program ending with an honors thesis under the direction of a senior faculty**
GEOL 5000* Master's Thesis. 1-6 credits, max 6. Prerequisite(s): Approval of graduate committee. Work toward master's thesis in geology.

GEOL 5030* Geologic Field Investigation. 1-3 credits, max 3. 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. No credit for students who have credit in 4020.

GEOL 5093* Stratigraphy of the Midcontinent. Prerequisite(s): GEOL 3034; MATH 1715 or equivalent; PHYS 2014 and 2114 or equivalent. All with a grade of "C" or higher. 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.

GEOL 5100* Problems in Hydrogeology. 1-4 credits, max 8. Prerequisite(s): GEOL 4453. Advanced problems in hydrogeology with emphasis on quantitative methods. Field trips may be required.

GEOL 5133* Structural Styles in Oil and Gas Exploration. Prerequisite(s): GEOL 3014 with a grade of "C" or higher. 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. Formerly GEOL 5203.

GEOL 5183* Paleontological of Depositional Sequences. Lab 2. Prerequisite(s): Graduate standing or permission of instructor. Paleoecology and biostratigraphy of depositional sequences. Evenly divided on lecture and laboratory components. Field trips are mandatory. No credit for students with credit in 4020.

GEOL 5213* Seismic Interpretation. Prerequisite(s): 4103, 3014 and 3034 with grades of "C" or higher. Examination of reflection seismic interpretation methods with emphasis on the oil and gas industry. Includes structural and stratigraphic methods. Hands-on interpretation using a standard industry software package. Same course as GEOI 4113.

GEOL 5223* Advanced Methods in Structural Geology. Lab 3. Prerequisite(s): 3014. Advanced geometric techniques and analysis of complex structural terrains. Elucidation of geometry and history of geological structures by interpreting seismic reflection profiles and constructing balanced cross-sections. Field trips required.

GEOL 5233* Trace Element Geochemistry. Lab 2. Prerequisite(s): One year of chemistry and 4403 or equivalent and 3034 or equivalent. 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.

GEOL 5243* Research Methods and Techniques in Geosciences. 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.

GEOL 5253* Petrology and Diagenesis of Clastic Rocks. Lab 3. Prerequisite(s): 2222. 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.

GEOL 5273* Depositional Systems. Prerequisite(s): 3034, 3546. Examination of the processes involved in the formation of the seafloor and the facies that 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.

GEOL 5283* Subsurface Geologic Methods. Lab 2. Prerequisite(s): 3014, 3034. Use of subsurface geologic information from cores and well logs to prepare maps and identify oil and gas prospects. Field trips required.

GEOL 5300* Geology Colloquium. 1 credit, max 2. Prerequisite(s): Graduate standing. Discussion of selected topics in the geological sciences with emphasis on professional presentation practices.

GEOL 5353* Advanced Well Log Analysis. Lab 3. Prerequisite(s): 3034 or 3413. The geologic interpretation of a variety of well logs, emphasized, as well as quantitative methods. Some exercises involve concurrent interpretation of well logs and core samples, or well logs and bit cuttings. Field trips required. No credit for students with credit in 4313 or 4323.

GEOL 5363* Carbonate Depositional Systems. Prerequisite(s): 3034 with a grade of "C" or higher. Survey course of the main types of carbonate sediments and depositional environments.

GEOL 5383* Sequence Stratigraphy. Lab 2. Prerequisite(s): 5253, 5353, 5363. Principles of sequence stratigraphy including carbonate and siliciclastic dominated intracratonic basins. Integration of surface and subsurface data in projects. Field trips required.

GEOL 5393* Stratigraphy of the Midcontinent. Lab 3. Prerequisite(s): GEOL 3034 with a grade of "C" or higher. 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.

GEOL 5433* Isotope Geochemistry. Lab 2. 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, petroleum systems, etc.

GEOL 5453* Groundwater Modeling. Prerequisite(s): 4453 or equivalent, MATH 2144, MATH 2153 each with a grade of "C" or higher. Modeling groundwater 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.

GEOL 5463* Physical Hydrogeology. Prerequisite(s): 4453 or similar with a grade of "C" or better. PHYS 2114 with a grade of "C" or higher. Chemistry of groundwater. 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.

GEOL 5483* Integrated Petroleum Water Resources Management. Prerequisite(s): GEOL 4453 or equivalent, MATH 2144 and 2153 each with a grade of "C" or higher. Developing, maintaining, and disposing or recycling water for the petroleum industry. Problems associated with water production and disposal including water quality issues and seismicity. Field trips required.

GEOL 5513* Marine Geology. Prerequisite(s): CHEM 1314 or equivalent; PHYS 1114 or 2014 or equivalent; GEOL 3034 or equivalent; all with a grade of "C" or higher. 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.

GEOL 5523* Environmental Organic Geochemistry. Prerequisite(s): CHEM 1314 and 1515 or equivalent; GEOL 3034 or equivalent. GEOL 4403 or equivalent or permission of instructor. Introduction to some environmental aspects of organic geochemistry. Soils and sediments as pollutant receptors, sources of pollutants and selected aspects of environmental health.

GEOL 5533* Organic Geochemistry. Prerequisite(s): CHEM 1314 and 1515 or equivalent; GEOL 3034 or equivalent. GEOL 4403 or equivalent. Matter in sediments and rocks with an emphasis on marine and petroleum systems.

GEOL 5543* Introduction to Exploration Seismology. Prerequisite(s): 4103 and 4303. Introduction to theory, techniques, and application of seismic field to hydrocarbon, groundwater, and minerals exploration. Review of fundamentals of transmission, reflection, refraction, and scattering of seismic waves, and 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 students with credit in 4543.

GEOL 5573* Marine Biogeochemical Cycles. Prerequisite(s): 1224 and 4403 and CHEM 1314. 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 students with credit in 4573.

GEOL 5603* Basin Evolution. Prerequisite(s): 3014, 3034, 4403. Advanced topics in sedimentary basin studies, including tectonics, sequence stratigraphy, facies analysis, regional geology, thermal evolution, regional hydrogeology, and distribution of natural resources.

GEOL 5633* Exploration Prospect Evaluation. Lab 6. Prerequisite(s): Graduate standing and permission of the instructor. 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.

GEOL 5753* Volcanology. Prerequisite(s): 2364 or equivalent with a grade of "C" or higher. Examination of volcanic processes, products, and structures on Earth and other terrestrial bodies. Optional field trip. No credit for students with credit in 4753.

GEOL 5773* Planetary Geology. Lab 2. Prerequisite(s): GEOL 1114, and GEOL 3073 recommended. Geology of planets and planetary bodies, including geochronology, tectonics, geology and geophysics; perspectives on exploration; and life in the universe.

GEOL 5981* Geoscience Internship. Prerequisite(s): Consent of instructor. 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.

GEOL 5990* Advanced Studies in Geology. 1-4 credits, max 8. Prerequisite(s): Consent of instructor. Individual library, laboratory and/or field projects on facets of geology not covered by existing courses. Field trips may be required.
GEOL 6003* Doctoral Dissertation Research. 1-12 credits, max 60. Work toward doctoral dissertation in Geology.

GEOL 6103* Gravity and Magnetic Methods. Lab 2. Prerequisite(s): 4103. 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.

GEOL 6133* Unconventional Petroleum Reservoirs. Prerequisite(s): 4023. Review of unconventional sources of oil and gas production including coiled tuber, tight gas-sandstones, gas and oil-bearing shales and transition zone, high-water saturation sandstones and carbonates.

GEOL 6283* Geology of Shales. Lab 2. Prerequisite(s): Graduate standing or permission of instructor. 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.

GEOL 6303* Electrical and Electromagnetic Methods. Lab 2. Prerequisite(s): 4103. 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.

GEOL 6363* Carbonate Reservoir Characterization. Prerequisite(s): GEOL 5363 or equivalent. Study and application of modern and ancient depositional systems, diagene, petrophysical, sequence stratigraphy, and geostatistical modeling towards the understanding of the three dimensional distribution and reservoir characterization of carbonate and mixed carbonate/siliciclastic systems. This is a seminar and project-based course. Field trip required.

GEOL 6373* Advanced Carbonate Petrology and Geochemistry. Prerequisite(s): GEOL 4403 with a grade of "C" or higher and 5363 with a grade of "B" or higher or equivalents or consent of instructor. 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.

GEOL 6386* Sequence Stratigraphy of Shales. Lab 12. Prerequisite(s): GEOL 5363 and 6363. Study of strata and shales of the Midcontinent. Detailed sequence stratigraphy analysis and deposition models of the Midcontinent will be studied. The class will be taught in preparation for high-resolution geophysical data analysis and use in real-world applications.

GEOL 6403* Biogeophysics. Lab 2. Prerequisite(s): 5443 or 4103 or 6303. Introduces students to the important role that microbes play in geologic processes and explores current cutting-edge research available to investigate these processes. The course will cover a broad range of topics, including microorganisms with special emphasis on those that live in extreme environments, such as high pressure, high temperature, and hydrothermal systems.

GEOL 6503* Rock Fractures. Prerequisite(s): 5301 or 4103. Mechanical analysis and engineering of fractures in rocks, water, etc. and geophysical methods used to investigate microbial processes will be emphasized. Field trips may be required.

GEOL 6553* Contaminant Transport. Lab 4. Prerequisite(s): 1314 and 1515. The course will cover the principles of contaminant transport and fate in groundwater systems, with emphasis on anaerobic and natural contaminants. Distribution and mobility of elements in the secondary environment. Computational methods for the interpretation of water analyses.

German (GRMN)

GRMN 1115 Elementary German I. 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.

GRMN 1225 Elementary German II. Prerequisite(s): 1115 or equivalent. Continuation of 1115. Not for native speakers per University Academic Regulation 4.9.

GRMN 2112 (I) Intermediate Conversation and Composition I. Prerequisite(s): 1225 or equivalent competence. (May have been gained in high school.) Cloispojue speech patterns and grammar. May be taken concurrently with other 2000-level German courses. Not for native speakers per University Academic Regulation 4.9.

GRMN 2113 Intermediate German I. Prerequisite(s): 1225 or equivalent. Selections from German contemporary cultural reading material. May be taken concurrently with other 2000-level German courses. Not for native speakers per University Academic Regulation 4.9.

GRMN 2222 (I) Intermediate Conversation and Composition II. Prerequisite(s): 2112 or equivalent competence. (May have been gained in high school.) Continuation of 2112, with further work in composition, conversation and grammar. May be taken concurrently with other 2000-level German courses. Not for native speakers per University Academic Regulation 4.9.

GRMN 2223 Intermediate German II. Prerequisite(s): 1225 or equivalent competence. (May have been gained in high school.) Reading/viewing 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.

GRMN 3013 German for Reading Requirements I. Prerequisite(s): Graduate standing or permission of instructor. Reading and discussion of vital subjects in German.

GRMN 3023 German for Reading Requirements II. Prerequisite(s): 3013 or equivalent. Intermediate and advanced reading in the humanities and sciences. Translation from German to English.

GRMN 3333 Modern Germany. Prerequisite(s): 20 credit hours of German or equivalent. The major cultural, social and political forces that have shaped the Germany of today.

GRMN 3343 German for Professional Purposes. Prerequisite(s): 2222 and 2223 or equivalent. Introduction to business concepts, practices and the expectations of professional life in Germany. Focus on specialized vocabulary.

GRMN 3463 Advanced Diction and Phonetics. Prerequisite(s): 20 credit hours of German or equivalent. German speech sounds and intonation patterns. Practices to improve the student's pronunciation. Required course for teacher certification.

GRMN 3803 Advanced Conversation. Prerequisite(s): 2222 or 2223 or equivalent. Colloquial speech forms and sentence structure. Practice in brief public address in German.

GRMN 3813 Advanced Grammar and Composition. Prerequisite(s): 2222 and 2223 or equivalent. Practice in original composition in German. Problematic points of German grammar and stylistics.

GRMN 3902 Orientation to Internship Abroad. Lab 1. Prerequisite(s): 2222 and 2223 or equivalent. Preparation for residential internship in a German-speaking country. Culture, civilization, and contemporary conditions, and communication for students accepted for international cooperative education program.

GRMN 3903 Internship Abroad. Lab TBA. Prerequisite(s): 2222 and 2223 or equivalent. Practical studies in a German-speaking country. Supervised research papers and reports and oral testing during and following the practicum.

GRMN 4113 (I) German Literature in Translation. Influential German, Austrian, and Swiss novels, short stories, plays, and poetry in translation. Discussion to see how they reflect social, literary, and philosophical state of the society at the time. Will be exposed to different themes as well as genres. May focus on literary production either of a certain time frame or follow a theme throughout centuries.

GRMN 4153 Survey of German Literature I. Prerequisite(s): 20 credit hours of German or equivalent. German literature from the beginning to 1785.

GRMN 4163 Survey of German Literature II. Prerequisite(s): 20 credit hours of German or equivalent. German literature from 1785 to the present.

GRMN 4333 Backgrounds of Modern German Civilization. Prerequisite(s): 20 credit hours of German or equivalent. Historical, cultural, political and literary trends in the formation of German civilization. Capstone course.

GRMN 4515 The Age of Goethe. Prerequisite(s): 20 credit hours of German or equivalent. Principal figures of German Classicism and Romanticism.

GRMN 4523 19th Century German Literature. Prerequisite(s): 20 hours or equivalent proficiency. Prose, lyric and drama from Romanticism to Naturalism.

GRMN 4543 Contemporary German Literature. Prerequisite(s): 20 hours or equivalent proficiency. Main currents in German literature from Naturalism until present day.

GRMN 4550 Studies in German. 1-3 credits, max 9. Prerequisite(s): 20 credit hours of German or equivalent competence. Reading and discussion of vital subjects in German.

Graduate (GRAD)

GRAD 5082* ITA Training - Oral Proficiency. Communication strategies and oral skills necessary for international teaching assistants. Courses may not be used on a student's plan of study to fulfill minimal degree requirements.

GRAD 5092* ITA Training - Presentation Skills. Prerequisite(s): Graduate standing. Prepares students for the ITA test. Topics include communication strategies, organization of topic, presentation skills. Students will practice making presentations in class. Course may not be used on a student's plan of study to fulfill minimal degree requirements.

GRAD 5880* Graduate Traveling Scholar. 1-24 credits, max 24. Prerequisite(s): Graduate degree candidate. Credit will vary depending on the program of each traveling scholar. Enrollment of graduate traveling scholars in
academy or research courses.

GRAD 5890*  Special Topics in Grantmanship. Prerequisite(s): Graduate standing and consent of instructor. Special topics on grantmanship 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.

GRAD 5990*  Special Problems in Graduate Education. 1-6 credits, max 6. Prerequisite(s): Graduate standing, permission of instructor. Special problems course with variable content. Topics relevant to graduate education and interdisciplinary studies. Taken with instructor permission only.

GRAD 5992*  Succeeding in the Professorate. Prerequisite(s): Graduate standing and permission of Director of College Teaching Certificate program. Preparation for doctoral students who wish to pursue careers in academia. Focuses on university-level teaching and scholarship. Serves as foundation course for doctoral students in the University Faculty Preparation Certificate program.

GRAD 6010*  Research or Intern Practicum. 1-9 credits, max 12. Prerequisite(s): Graduate standing. 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.

GRAD 6913*  College Teaching Apprenticeship. Lab 6. Prerequisite(s): 5992 and enrollment in College Teaching Certificate program; EPSY 5463 or 6813; EDLE 6713 or 6583. Other EPSY/EDLE courses may be approved by Coordinator of program. Faculty member mentors doctoral student in instructing a university-level course.

GRAD 6921*  College Teaching Practicum. Lab 2. Prerequisite(s): 6913. Student acts as instructor of record for an undergraduate course under the mentorship of a faculty member appropriate to the course taught.

Greek (GREK)

GREK 1113  Elementary Classical Greek I. Grammar and vocabulary of ancient Greek.

GREK 1223  Elementary Classical Greek II. Prerequisite(s): 1113 or equivalent. A continuation of 1113. Grammar and readings of classical Greek authors.

GREK 2113  Elementary Classical Greek III. Prerequisite(s): 1223 or equivalent. A continuation of 1223. Grammar and readings of classical Greek authors.

GREK 2213  Intermediate Readings. Prerequisite(s): 2113 or equivalent. An introduction to a variety of classical authors to increase reading facility and grammatical comprehension.

GREK 3330  Advanced Readings. 1-6 credits, max 9. Prerequisite(s): 2213. Prose authors, epic poetry, drama, Koine Greek and religious texts.

GREK 4113 (H)  Greek Literature in Translation. Readings of significant works from ancient Greek literature and philosophy in English translation, from Homer through Aristotle. Readings and classes conducted in English.

Health Care Administration (HCA)

HCA 5010*  Research and Thesis. 1-3 credits, max 9. 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.

HCA 5013*  Survey of Health Care Administration. Overview of current issues in health care administration that relate to planning, legal, ethical and other related topics.

HCA 5023*  Human Resources in Health Care and Public Administration. Review, discuss and analyze current issues, rules, practices and governance of human resources in health care and public administration.

HCA 5033*  Legal Issues in Health Care Administration. Explore, discuss and analyze current legal issues and topics that relate to all aspects of the health care profession.

HCA 5043*  Organizational Leadership and Development in Health Care. 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.

HCA 5050*  Directed Readings in Health Care Administration. 2 credits, max 2. Focuses on specific topics of interest and emphasis in healthcare administration. Topics will be chosen or assigned for focused literature review.

HCA 5063*  Health Care Compliance. Introduces general concepts as they relate to health care compliance issues including legal issues, risk assessment, informed consent, credentialing, compliance and ethics.

HCA 5073*  The Social Structure of Health Care Organizations. 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.

HCA 5083*  The Financial Structure of Health Care Organizations. 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 professionals to achieve organizational goals.

HCA 5093*  Leadership Methods and Styles in Healthcare. 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.

HCS 5103*  Intro to Global Health. Highlights the chronic, emerging and re-emerging global health issues and examines possible measures to address them.

HCA 5113*  Entrepreneurship and the Health Sciences. 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.

HCA 5123*  Survey of Research and Evaluation in Health Care. Introduces a basic understanding of statistics used in healthcare and biomedical research and developing research from the biomedical bench to the final stages of clinical trials. Analyzes healthcare program outcomes.

HCA 5133*  Health Care Informatics. Focuses on healthcare informatics for the entire spectrum within the medical community. Covers local and community applications to broad global initiatives.

HCA 5143*  Relief and Development in Global Health. Explores the roles and interaction of intergovernmental and governmental agencies and NGOs involved in global health.

HCA 5153*  International Health Systems. Provides an overview of the differences in global health care systems using a historical and sociopolitical context making extensive use of country case studies.

HCA 5163*  Healthcare Accounting and Auditing. Introduces the unique aspects of healthcare accounting and auditing. Presents and discusses various accounting and auditing topics as they relate to healthcare administration.

HCA 5990*  Special Topics in Health Care Administration. 3-9 credits, max 9. This course is designed to provide an overview of current issues in health care administration that relate to planning, human resources, legal, ethical and other related topics.

Health and Human Performance (HHP)

HHP 1713  Introduction to Athletic Training. Lab 1. Prerequisite(s): Admission to the athletic training program. An introduction to the profession of athletic training. The principles of injury prevention and care relative to athletic injuries and development of essential skills and competencies needed to perform selected athletic training procedures. Theory-based course with required laboratory experiences.

HHP 1753  Introduction to Physical Education. The nature, scope and significance of physical education. Historical and philosophical foundations, multidisciplinary relationships and their interrelationships, and career opportunities.

HHP 1812  Pedagogy of Non-Traditional Activities. Prerequisite(s): HHP and LEIS majors and minors only. Introduction of activities typically taught to supplement individual or team sports. Content includes teaching strategies, skill components, terms, safety issues, and selection of developmentally appropriate non-traditional activities, scope and sequencing of skill components by grade level, skill components, assessment, terms, safety issues, selection of developmentally appropriate team activities, lesson structure.

HHP 1822  Pedagogy of Rhythm and Movement. Prerequisite(s): HHP and LEIS majors and minors only. Introduction of basic fundamentals and methods of movement skills for rhythms including social, creative, developmental, and multicultural dance and activities. Analysis of skills, concepts, terms, safety issues, teaching strategies and development appropriateness.

HHP 1832  Pedagogy of Team Activities in PE. Prerequisite(s): HHP and LEIS majors and minors only. Introduction of activities typically taught as team or group activities. Instructional strategies (methodologies) of team sports, scope and sequencing of skill components, assessment, terms, safety issues, lesson structure, and writing performance objectives.

HHP 1842  Pedagogy of Individual Activities. Prerequisite(s): HHP and LEIS majors and minors only. 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.

HHP 2213  Principles in Health Education and Health Promotion. Introduction to the field of health education and health promotion focusing on health principles, theories, career opportunities and a field experience.

HHP 2222  Introduction to Health Aspects of Gerontology. An introductory course of the physical and physiological aspects of aging combined with
common pathology and intervention.

HHP 2323 Drugs and Society. 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 HHP 3913.

HHP 2451 Athletic Training Practicum I. Lab 1. Prerequisite(s): Full admission into athletic training program. Directed observation in supervised introductory laboratory and clinical experiences in athletic training.

HHP 2461 Athletic Training Practicum II. Lab 1. Prerequisite(s): Successful completion of 2451, 2844. Directed observation in supervised introductory laboratory and clinical experiences in athletic training.

HHP 2553 Basic Athletic Injury Management. Prerequisite(s): 2654. Identification of emergency medical situations and application of basic care for injury occurring in school and athletic setting.


HHP 2603 (S) Total Wellness. Overview of individual, interpersonal, and sociocultural issues that have an impact on health. Behavioral decision-making, social relations, cultural diversity and environmental sensitivity.

HHP 2654 Applied Anatomy. Lab 2. Prerequisite(s): BIOL 1114. 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.


HHP 2712 Psychomotor Development. Prerequisite(s): HHP and LEIS majors and minors only. Fundamental aspects of motor development for infants, children, youth and adults.

HHP 2733 Procedures in Athletic Training. Lab 1. Prerequisite(s): 1713, 2654, 2664. Introduction to the psychomotor skills required in the profession of athletic training. Procedures relative to injuries and the development of essential skills and competencies needed to perform selected athletic training procedures. Theory-based course with required lab experience.

HHP 2802 Medical Terminology for the Health Professions. Basic knowledge and understanding of medical language and terminology used in allied health and health professions.

HHP 2844 Clinical Examination and Diagnosis I. Lab 2. Prerequisite(s): 2654, 2733 and 2664. Advanced knowledge and skills related to the recognition, diagnosis and appropriate medical referral of injuries to the lumbar spine, pelvis and lower extremities.

HHP 2854 Clinical Examination and Diagnosis II. Lab 2. Prerequisite(s): 2654, 2733, 2664, 2844. Advanced knowledge and skills related to the recognition, diagnosis and appropriate medical referral of injuries to the head, cervical and thoracic spine, upper extremities, abdominal and thoracic regions.

HHP 3010 Health and Human Performance Workshop. 1-3 credits, max 6. Concentrated study of selected areas of health and human performance, including problems in instruction and administration not usually addressed in the undergraduate curriculum.

HHP 3112 Radiography Evaluation and Assessment. Prerequisite(s): Full admission into ATEP clinical or pre-professional option. Introduction to the fundamental principles, equipment, and common methods and procedures of radiography.

HHP 3114 Physiology of Exercise. Lab 2. Prerequisite(s): MATH 1513. 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.


HHP 3233 General Medical Concepts. Prerequisite(s): 2654, 2664, and ZOOL 3204, CHEM 1314, HHP 3673. Specific pathologies, medical conditions, and possible avenues for treatment of non-orthopedic conditions. Based in current medical research, theory and practical outcomes.

HHP 3333 Ethics in Sports Administration and Coaching. Exploration of the ethical, legal, and professional dilemmas that occur in athletic administration and coaching.

HHP 3431 Early Laboratory and Clinical Experiences in Physical Education. Lab 1. Prerequisite(s): 1753 and declaration of intention to pursue a program in Professional Education. The initial pre-professional clinical experience for students enrolled 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.

HHP 3443 Psychosocial Aspects of Sport and Coaching. Examination of the psychological aspects of sport that impact the performances of coaches and athletes.

HHP 3451 Athletic Training Practicum III. Lab 1. Prerequisite(s): Successful completion of 2461, 3802, and 3902. Directed observation in supervised intermediate laboratory and clinical experiences in athletic training.

HHP 3461 Athletic Training Practicum IV. Lab 1. Prerequisite(s): Successful completion of 3451, 3924. Directed observation in supervised intermediate laboratory and clinical experiences in athletic training.

HHP 3513 Community Health. Prerequisite(s): 2.75 major GPA, 2.50 overall GPA, 2213, 2603 or consent of instructor. A survey of issues impacting the health of populations from a community health perspective.

HHP 3623 School Health Programs. Prerequisite(s): 2603. The identity and relationships of school health instruction, services and environments.

HHP 3643 Health Behavior Theory. Prerequisite(s): Full admission to HEP and junior standing or consent of instructor. Examination 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.

HHP 3663 Biomechanics. Prerequisite(s): 2654. 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.


HHP 3723 Principles of Epidemiology. Prerequisite(s): Full admission to HEP and junior standing or consent of instructor. Survey of epidemiological principles and how they relate to the planning of both community and consumer-focused health promotion and disease prevention programs.

HHP 3753 Methods in Teaching Elementary Physical Education. Prerequisite(s): 1753, 1812, 1822, 1832, 2712, and 3430. Theory and practical experience of physical education in the elementary school. Teaching styles and activities needed to meet the needs of children from kindergarten through grade five.

HHP 3763 Health and Physical Education for Elementary Age Children. Methods of teaching health and physical education to elementary age children. Theory and practical experience of health behaviors, movement skills and physical fitness.

HHP 3773 Methods in Teaching Secondary Physical Education. Prerequisite(s): 1753, 1812, 1822, 1832, 3430. Instructional styles, implementation of behavioral goals and objectives through unit and lesson preparation, teaching methods and classroom management.

HHP 3802 Therapeutic Modalities for Injury I. Lab 2. Prerequisite(s): 2654, 2664, CHEM 1314 and concurrent enrollment ZOOL 3204. Discussion and application of common thermal and mechanical interventions used in the treatment of acute and chronic injuries to the musculoskeletal systems.

HHP 3902 Therapeutic Modalities for Injury II. Lab 1. Prerequisite(s): 3802. Discussion and application of common electronic and physiologic devices used in the treatment of acute and chronic injuries to the musculoskeletal systems.

HHP 3913 Alcohol and Drug Education. Prerequisite(s): Full admission to HEP and junior standing or consent of instructor. Description of the biopsychosocial, psychological, pharmacological, and cultural aspects of drug use, misuse, and abuse. In addition, the methods, materials, and theories of drug abuse prevention in the school and community will be explored.

HHP 3924 Therapeutic Exercise. Lab 2. Prerequisite(s): 3802. 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.

HHP 4010 Directed Study. 1-3 credits, max 6. Prerequisite(s): Written approval by department head. Supervised readings, research or independent study of trends and issues related to the area of health, physical education or leisure services.

HHP 4233 Health and Human Sexuality. Prerequisite(s): Full admission to HEP and junior standing or consent of instructor. The study of human sexuality as it relates to the health and well-being of individuals in the community, college, school or worksite settings.

HHP 4243 Research Methods in Athletic Training. Prerequisite(s): STAT 2013. 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.

HHP 4451 Athletic Training Practicum V. Lab 1. Prerequisite(s): Successful completion of 3461. Directed observation in supervised advanced laboratory and clinical experiences in athletic training.

HHP 4461 Athletic Training Practicum VI. Lab 1. Prerequisite(s): Successful completion of 3233, 4451. Directed observation in supervised advanced laboratory and clinical experiences in athletic training.
HHP 4480 Internship in Health and Human Performance. 1-2 credits, max 12. Prerequisite(s): Last semester senior standing with cumulative GPA of 2.50. Supervised experience in school (physical education and health), community worksite or athletic training setting in order to qualify or prepare for appropriate teaching and professional certification.

HHP 4530 International Athletic Training. 1-3 credits, max 6. Explore and experience the techniques of prevention and care of athletic injuries in a culture outside of the United States. Course must be taken in two different countries to count as second time credit.

HHP 4533 Psychosocial Issues in Health Education/Promotion. Prerequisite(s): Admission to HEP and senior standing or consent of instructor. Psychosocial issues as they relate to the practice of health education/promotion. Personal and professional applications of the course material will be emphasized.

HHP 4643 Methods in School and Community Health Education. Prerequisite(s): 3623, full admission to Professional Education. Conceptual approach to health education through a variety of teaching methodologies.

HHP 4723 Assessment in Physical Education. Prerequisite(s): Full admission to professional education. Evaluation techniques commonly used by physical educators and health professionals to measure knowledge, attitudes, sport skill proficiency and physical fitness.

HHP 4733 Organization, Administration and Curriculum in Physical Education and Athletics. Prerequisite(s): 3753, 3773 or concurrent enrollment; full admission to professional education. Curricular design and management of physical education (P-12) and athletic programs.

HHP 4773 Principles of Exercise Testing and Prescription. Prerequisite(s): 3114. 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.

HHP 4783* Health Issues in Gerontology. Prerequisite(s): 2603, or consent of instructor. An in-depth study of physiological aspects, special health concerns, chronic illnesses and services as applied to gerontology.

HHP 4792* Adapted Physical Education. Prerequisite(s): 3753, 3773, full admission to Professional Education. Cognitive and psychomotor characteristics of disabling conditions, needs and challenges of educating the exceptional learner in the regular physical education program.

HHP 4880* Internship in Health Education and Promotion - Community Health. Prerequisite(s): Last semester - Senior standing with cumulative GPA 2.75. Supervised field work experience in health promotion or health-related settings for students in the Community Health option.

HHP 4901 Rehabilitation Seminar. Prerequisite(s): 2844, 2854, 3673, 3904, 3924 and 4451. Capstone course using patient problems to develop clinical decision-making incorporating preceding course work in pathology assessment, therapeutic modalities, exercise and pharmacology.

HHP 4902 Pre-Internship Seminar. Prerequisite(s): Full admission to HEP, last semester prior to 4990 or consent of instructor. Capstone course for the health promotion program. Preparation for the health internship experience.

HHP 4933 Administration and Organization of Athletic Training Programs. Prerequisite(s): 4451. The administration and organization of athletic training programs including organizational and implementation, certification procedures, code of professional practice, safety standards and resource management.

HHP 4973 Program Design in HEP. Prerequisite(s): Full admission to HEP and senior standing or consent of instructor. A program design principles, including theoretical foundations, planning, marketing, delivering and evaluating.

HHP 4983* Current Issues in Athletic Training. Prerequisite(s): 3663, 4451 and admission to athletic training program. Development of competencies set by the National Athletic Trainers Association Board of Certification. Current issues facing athletic trainers and the role in today's health care systems.

HHP 4990* Internship in Health Education and Promotion - Exercise and Health. 1-12 credits, max 12. Prerequisite(s): Last semester; senior standing with cumulative GPA 2.75. Supervised field work experience in health promotion or health-related settings for students in the Exercise and Health option.

HHP 5000* Master's Thesis. 1-6 credits, max 6. Independent research required of candidates for master's degree. Credit awarded upon completion of thesis.

HHP 5010 Seminar. 1-2 credits, max 4. Selected topics from the profession not covered in other courses. Presentation and critique of research proposals and results.

HHP 5020 Health and Human Performance Workshop. 1-3 credits, max 6. Workshop in selected areas of health and human performance.

HHP 5030 Field Problems in Health and Human Performance. 1-3 credits, max 6. Individual investigations of issues in the areas of health and human performance.

HHP 5033* Advanced Techniques in Orthopedic Assessment. Knowledge in evaluating various upper and lower extremity orthopedic injuries.


HHP 5073* Psychological Aspects of Sport. Psychological foundations of sport emphasizing performance enhancement by athletes through psychological training techniques.

HHP 5103* Emergency Management in Athletic Healthcare. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. Development of essential skills and competencies necessary to manage emergency situations.

HHP 5113* Psychological Aspects of Health. Examination of the interactions of biological, psychological, social, and spiritual factors as they impact human health and disease.

HHP 5122* Therapeutic Modalities I. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. Advanced knowledge in the application of common thermal and cryotherapeutic interventions for acute and chronic injuries as they related to evidence based practice.

HHP 5133* Environmental Health. Prerequisite(s): Successful admission to the Graduate College or special permission. Examination of health issues, etiology of disease, and control and prevention of major environmental health problems in industrialized and developing countries.

HHP 5173* Therapeutic Interventions in Athletic Training. Advanced understanding of various methods of how to treat orthopedic injuries commonly seen in health care.

HHP 5184* Injury Prevention. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. 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.

HHP 5201* Athletic Training Practicum I. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. Supervised clinical experiences in athletic training emphasizing concepts in injury prevention, acute care injury management.

HHP 5222* Therapeutic Modalities for Injury II. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program and HHP 5122. 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.

HHP 5233* Sexuality and Health. 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.

HHP 5234* Clinical Evaluation and Diagnosis of the Lower Extremity. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. 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.

HHP 5244* Therapeutic Exercise of the Lower Extremity. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. 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.

HHP 5301* Athletic Training Practicum II. Prerequisite(s): HHP 5201 Athletic Training Practicum I. Interactive and supervised clinical experiences in athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the lower extremity.

HHP 5314* Clinical Evaluation and Diagnosis of General Medical Conditions. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. To present the student with specific pathologies, medical conditions and possible avenues for treatment of nonorthopedic conditions. Based in medical theory and practical outcomes, this course will prepare students to evaluate, treat and refer to proper medical professionals.

HHP 5323* Advanced Epidemiology. Prerequisite(s): Admission to the Graduate College or special permission from the instructor. Examination of epidemiological theory and its methodological application to public health.

HHP 5334* Clinical Evaluation and Diagnosis of the Upper Extremity. Prerequisite(s): HHP 5234. Advanced knowledge and skills related to evidence based practice in the recognition, diagnosis and appropriate medical referral of injuries to the upper extremities.

HHP 5344* Therapeutic Exercise of the Upper Extremity. Prerequisite(s): HHP 5244. 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.

HHP 5401* Athletic Training Practicum III. Prerequisite(s): HHP 5301 Athletic Training Practicum II. Interactive and supervised clinical experiences in
athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the upper extremity.

HHP 5412* Radiography Evaluation and Assessment. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. To introduce the student to the fundamental principles, equipment and common procedures of radiography.

HHP 5444* Clinical Diagnosis, Evaluation, and Therapeutic Exercise of the Head and Spine. Prerequisite(s): HHP 5344. 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.

HHP 5453* Cultural Issues in Health Education and Promotion. 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.

HHP 5483* Pathology and Pharmacology in Sports Medicine. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. Discuss various pathophysiological conditions and common pharmaceutical interventions as they relate to pharmacodynamics and pharmacokinetics.

HHP 5501* Athletic Training Practicum IV. Prerequisite(s): HHP 5401. Provides advanced and supervised clinical experiences in athletic training emphasizing diagnosis, treatment and rehabilitation of injuries to the head and spine and general medical conditions.

HHP 5523* Current Readings in Health. Contemporary research, literature, projections and views as applied to total health and well-being.

HHP 5530* International Athletic Training. 1-3 credits, max 6. Explore and experience the techniques of prevention and care of athletic injuries in a culture outside of the United States. Course must be taken in two different countries to count as second time credit.

HHP 5553* Research Methods in Athletic Health Care. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. 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.

HHP 5573* Athletic Healthcare Administration. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. The administration and organization of athletic healthcare programs including planning and implementation, certification procedures, code of professional practice, safety standards and resource management.

HHP 5583* Psychosocial Strategies in Athletic Healthcare. Prerequisite(s): Admission into the Entry Level Masters degree Athletic Training Education Program. Development of psychosocial strategies and referral competencies set by the National Athletic Trainers Association Board of Certification.

HHP 5593* Human Electrocardiographic Interpretation. Prerequisite(s): 3114 or consent of instructor. Knowledge concerning the collection and interpretation of the electrocardiogram (EKG) and its relationship to heart anatomy, physiology and electrophysiology.

HHP 5601* Athletic Training Practicum V. Prerequisite(s): HHP 5501. Athletic Training Practicum IV. Interactive and supervised clinical experiences in athletic training emphasizing evidence based practices and administrative responsibilities.

HHP 5603* Principles of Performance Enhancement. Prerequisite(s): 2654, 3114, ZOOL 3204. Theoretical foundation of specific tenets of exercise and performance enhancement. Emphasis placed on planning and implementation, certification procedures, code of professional practice, safety standards and resource management.

HHP 5623* Special Topics in Health and Human Performance. Prerequisite(s): Admission to the Graduate College. Special topics related to health and human performance. Investigation, discussion and analysis of contemporary topics.

HHP 5653* Advanced Research in Health and Human Performance. Prerequisite(s): Graduate elementary statistical methods course. In-depth study of selected surveys and experimental research in HHP, including questionnaire development, survey methodology and analysis of data.

HHP 5663* Statistical Computing and Proposal Writing. Prerequisite(s): Consent of instructor. Instruction in the use of SPSS using a personal computer. Preparation of research proposals.

HHP 6013* Clinical Exercise Physiology Laboratory. Prerequisite(s): HHP 5894 or consent of instructor. Practice using basic laboratory skills which can be applied to studies in the field of human energy production, utilization and storage in response to exercise.

HHP 6053* Stress Testing and Exercise Prescription I. Prerequisite(s): 5593. Theory and practice in resting and exercise EKG, stress test protocols and exercise prescription.

HHP 6073* Human Bioenergetics. Prerequisite(s): 3114. Human energy production, utilization and storage in response to exercise.

HHP 6094* Biochemistry of Exercise Lab Methods. Lab 2. Prerequisite(s): Consent of the instructor. Practice using basic laboratory skills which can be applied to studies in biochemistry. General biochemistry as it relates to exercise metabolism, laboratory procedures, calculations, common lab problems and solutions and laboratory safety procedures.

HHP 6293* Program Design in Health Education and Promotion. A survey of program design principles, including assessing, theoretical foundations, planning and marketing.

HHP 6393* Health Promotion Program Implementation and Evaluation. Prerequisite(s): 5973. An intensive overview of principles of health promotion program implementation and evaluation with special emphasis on application.


HIST 1010 Studies in American History. 1-2 credits, max 2. Special study in American history to allow transfer students to fulfill general education requirements as established by Regents' policy.

HIST 1020 Freshman Historical Research Methods. 1-3 credits, max 3. Prerequisite(s): Requires consent of instructor. For lower-division students interested in learning research methods in history while working on a research project with an individual faculty member. Preference given to students in A&S Freshman Research Seminar.

HIST 1103 Survey of American History. 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 1483 or 1493.

HIST 1483 American History to 1865. From European background through the Civil War. Intended for Education majors seeking certification as Social Studies teachers. No degree credit for students with credit in HIST 1103.

HIST 1493 American History Since 1865. May be taken independently of HIST 1483. Development of the United States including the growth of industry and its impact on society and foreign affairs. Intended for Education majors seeking certification as Social Science teachers. No degree credit for students with credit in HIST 1103.

HIST 1613 (H) Western Civilization to 1500. History of western civilization from ancient world to Reformation.

HIST 1623 (H) Western Civilization after 1500. History of western civilization from Reformation to present.

HIST 1713 (H) Survey of Eastern Civilization. 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 civilization.

HIST 2323 Oklahoma History. Early exploration and development of Indian Territory; the rise and demise of the Five Indian Nations; and the organization and development of the 41st state to the present. Required of all candidates for teacher’s licensure/certification in social studies.
HIST 2333 (H) American Thought and Culture: Survey. Survey of American religious, philosophical, artistic, and scientific ideas and their impact on culture and values.

HIST 2343 (H) Religion in America. Survey of the history of religion in America and its impact on social reform, politics, and intellectual life.

HIST 3003 (I,S) Soviet Union: History, Society and Culture. A comprehensive view of the Soviet Union, stressing those issues in the political, economical, technological, geographical, and cultural spheres which are most relevant to the current situation. Accessible to beginning undergraduates. (Same course as POLS 3003 and RUSS 3003)

HIST 3013 (H) Ancient Egypt and Israel. The Ancient Near East with a focus on Egyptian and Israelite history, from the earliest times to the 5th century B.C.

HIST 3023 (H) Ancient Greece. The Greek world from the Bronze Age through Alexander the Great, with special emphasis on politics, culture and institutions of Classical Greece.

HIST 3033 (H) Ancient Rome. Political, social, economic and cultural history of the Roman Republic and Empire.

HIST 3043 (H) Ancient Mesopotamia: Iraq, Iran & Syria from 4000-333 B.C. From the birth of civilization to the end of the Persian Empire, this course examines the history, archaeology and cultures of the fertile crescent.

HIST 3055 (I,S) Introduction to Central Asian Studies. 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, POLS 3053 & RUSS 3053)

HIST 3113 (H,I) Germany Since 1815. 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.

HIST 3133 (H) African Diaspora History. Introduction to the origin, development, and maturation of the African Diaspora in the Americas and the Caribbean, from the transatlantic slave trade to the mid-20th century. Emphasis is placed on a critical reading and discussion of a selection of essays, historiographies and primary materials on diasporic and transnational experiences and identities of Africans, African descendents, and Caribbean transmigrants.

HIST 3153 (H) Russia to 1861. Political, institutional, societal and economic development of Russia from the Kievan period to the Great Reforms.

HIST 3163 (H,I) Russia Since 1861. Modernizations of Russia in the 19th and 20th centuries. Great reforms and their effects and the 1917 revolutions and their consequences.

HIST 3203 (H) Early Medieval Europe, 325-1000. Early Middle Ages in Europe with emphasis on political, economical, religious, and social developments. Considerations of Europe’s interactions with Byzantium and Islam.

HIST 3233 (H) Later Medieval Europe, 1000-1450. High and Late Middle Ages in Europe with emphasis on political, economic, religious, and social developments. Considerations of Europe’s interactions with Byzantium and Islam.

HIST 3243 (H) Renaissance, 1350-1517. 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.

HIST 3253 Absolutism and Enlightenment, 1648-1789. Political, social, intellectual and religious transformation of Europe between the Peace of Westphalia and the French Revolution.

HIST 3263 (H) Modern Europe, 1815-1914. Impact of modernization on the character of European society. Factors that transformed the Continent into a battle ground in the 20th century.

HIST 3273 (H,I) Modern Europe Since 1914. 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.

HIST 3323 (H) Modern France, 1789-Present. French politics, economy, society, and culture from the defeat of Napoleon to France's post-World War II "rebirth."

HIST 3333 (H,I) History of the Second World War. Problems leading to World War II with their international implications and consideration of the war years.

HIST 3343 (H) World War I in Modern European Culture. Analysis of the war as the principal event determining the course of twentieth century European history: battles, home fronts, personal, literary and artistic expression.

HIST 3353 (H) Mediterranean World. Examination of the cultural and social encounters between East and West, Christian and Muslim. The meeting point for three world cultures and three continents explored in the following themes: pilgrimage, commerce, slavery, intellectual exchange, warfare, and minority communities.

HIST 3363 (H) Popular Religion in the West, 1300-1700. 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.

HIST 3373 (H) Medieval England: 55 B.C.-1485 A.D. English History from Roman Britain to the beginning of the Tudor period. Development of the English constitution from the early Germanic state through feudalism to the New Monarchy.


HIST 3393 (H) Modern England: 1714-Present. English history from the arrival of the house of Hanover through the decline of British influence following the Second World War. Political, social, and economic problems encountered as a result of the creation of the first modern industrialized state.

HIST 3403 (H) East Asia to 1800. Traditional Chinese civilization and its impact on Japan, Korea and Southeast Asia.

HIST 3413 (H,I) East Asia Since 1800. 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.

HIST 3423 (H,I) Modern Japan. Modernization process in Japan since 1868.

HIST 3433 (H,I) Modern China. Response of China to the West since 1840, with stress on economic, social and intellectual currents.

HIST 3443 (H) Gender Relations in Chinese History. Men’s and women’s social, cultural, religious, political, sexual and economic experiences in Chinese history; particularly women’s own voices and efforts in pursuing their own goals and aspirations.


HIST 3483 (H) Reformation Europe, 1517-1648. Development and impact of religious reform movements, overseas expansion, state building, the Scientific Revolution, and the Thirty Years’ War on European civilization.

HIST 3493 (H,I) Scandinavia Since 1500. Exploration of Scandinavia from 1500 to the present. Focus on key historical and contemporary questions such as the spread of Lutheran reform, Sweden and Denmark as major European powers, the growth of nationalistic and Scandinavian identity, industrialization, the nuclear state, and multiculturalism.

HIST 3503 (H) Islamic Civilization 600-1800. Rise of Islam in Arabia and subsequent spread to Africa, Asia and Europe. Nature of Islamic civilization through discussion of political, social, cultural and economic institutions established in the Middle Ages as well as diversity of Islamic traditions.

HIST 3513 (H,I) Modern Middle East Since 1800. Main political events, social institutions, cultural and economic developments, as well as various aspects of everyday life in the Middle East since 1800. 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.


HIST 3553 (H,I) Media and Popular Culture in the Arab Middle East. Popular culture throughout the Arab-speaking world in light of the most important political and economic events of the 19th and 20th centuries.

HIST 3613 (H) American Colonial Period to 1750. Colonization of British and French North America; colonial political, social, cultural, intellectual and economic development; international rivalries; the imperial structure.

HIST 3623 (H) Era of the American Revolution. British imperial problems; the American Revolution; political, cultural, economic, social and religious change; the political culture for Independence; the American Constitution; and the critical years of the new Republican government.

HIST 3633 (H) Early National Period, 1787-1828. Drafting and adopting the Constitution, organizing the government; Jeffersonian Republicanism, the War of 1812, territorial expansion, the new West, nationalism and sectionalism.

HIST 3643 (H) The Jacksonian Era, 1828-1850. Development of a modern political system and an entrepreneurial economy; social reform; territorial expansion; and sectionalism.
HIST 3635 Civil War and Reconstruction, 1850–1877. Causes, decisive events, personalities and consequences of the dissolution and reunion of the United States.

HIST 3663 (H) Robber Barons and Reformers: U.S. History, 1877–1919. The impact of industrialization upon American society and politics. America’s rise to world power, the Progressive movement and World War I.

HIST 3673 (D,H) United States History, 1919–45. 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.

HIST 3683 (D,H) United States History Since 1945. The political, social, and cultural history of the United States since World War II. The Cold War, McCarthyism, 1950s ideals of the nuclear family, the civil rights and other social movements, the Vietnam War, Watergate, the Reagan years and globalization.

HIST 3693 (H) The Modern West. Social, political, economic changes that define the twentieth-century American West.

HIST 3753 (H) Trans-Mississippi West. 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.

HIST 3763 (D,H) American Southwest. 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.

HIST 3773 (S) Old South. Social, political and industrial conditions in the South before the Civil War.

HIST 3793 (D,H) Indians in America. American Indian from Columbus to the present, emphasizing tribal reaction to European and United States cultural and political policy.

HIST 3913 (H) History of Medicine. Historical growth of medicine and its relationship to the society in which it develops. Scientific problems, cultural, religious and medicine.

HIST 3953 Religion in Modern Europe. Religious thought and experience as influences on the politics, economy, and general culture of European nations from the 17th century to the present.

HIST 3963 (H) Ideas and Ideologies in Modern Europe. Prerequisite(s): 1623. Intellectual development in modern Europe, including political, social, and cultural foundations and impact on modern Europe.


HIST 4063 Historic Preservation. 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 5063.

HIST 4153 (D,H) African American History, 1619–1865. Overview of the history of African Americans from the onset of slavery and the slave trade to 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.

HIST 4163 (D,H) African American History, 1865–1954. Major issues and actions from the beginning of the Civil War to the 1954 Supreme Court decision. Focus on political and social history; transition from slavery to emancipation and Reconstruction; the Age of Booker T. Washington; urban migrations, rise of the ghettoes; the ideologies and movements from integration to black nationalism.

HIST 4173 (D,H) Black Intellectual History. 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.

HIST 4253 (H) U.S. Foreign Relations to 1945. Overview of the history of U.S. foreign relations from the colonial era through World War II.

HIST 4273 (H) U.S. Foreign Relations Since 1945. Overview of the history of U.S. foreign relations from World War II to the present.

HIST 4353 (H) American Military History. Civil-military relations, the Southwestern states of Texas, Mexico, the Mexican-American War, and the political and social consequences of that war.

HIST 4433 (H) American Cultural History Since 1865. Continuation of 4463; may be taken independently. Emphasis on nonpolitical aspects of American society and thought and on world influences.

HIST 4493 (D,H) Frontier in American Memory. 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.

HIST 4503 (H) American Urban History. Impact of urbanization upon American communities from 1865 to the present. Evolving political and social institutions, social change, technological innovations and planning theories.

HIST 4513 (S) American Economic History. Economic development and economic forces in American history; emphasis upon industrialization and its impact upon our economic society since the Civil War. (Same course as ECON 3923)

HIST 4523 (H) American Environmental History. Examination of the changing ways society (from Native American to post-industrial) has defined, interpreted, valued, and used nature.

HIST 4543 (H,I) Vietnam War. Origins of the Vietnamese struggle against colonialism, international policy, making of military strategy and diplomacy, anti-war movement, impact on the war on soldiers and civilians, reflections of the war in popular memory and culture.

HIST 4553 (D) Gender in America. 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)

HIST 4563 (H,J) Cold War. 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.

HIST 4573 (H) Women in Western Civilization. Women in the development of Western Civilization from the earliest times to the present.

HIST 4583 History of Technology. The development of technology in western civilization. The relationship between science and technology and the effect of technology on society.

HIST 4593 (H) America in International Perspective. Prerequisite(s): 1103 or lower-division course in U.S. History, any period. 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)

HIST 4903 Senior Seminar. Prerequisite(s): History major or consent of instructor. 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.

HIST 4980* Topics in History. 1-3 credits, max 9. For students interested in pursuing either a research or a reading project. Open to honors students in history and to others by permission of the department head.

HIST 4990 Undergraduate Internship. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. History related internship experience designed to introduce majors to career possibilities.

HIST 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

HIST 5000* Thesis. 1-6 credits, max 6.

HIST 5021* Teaching History at the College Level. Survey of objectives and methods in the teaching of history at the college level.

HIST 5023* Historical Methods. Methods of historical research and the writing of history.

HIST 5030* Public History Internship. 3-6 credits, max 6. Prerequisite(s): Consent of graduate committee. Supervised practical experience in applied history.

HIST 5033* Introduction to Public History. Prerequisite(s): Graduate student standing. Introduction to the 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.

HIST 5053* Museum Studies. Prerequisite(s): Graduate student standing. Introduction to museum theory and practice, especially as it pertains to history museums and sites.

HIST 5063* Historic Preservation. Prerequisite(s): Graduate student standing. 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 4063.

HIST 5120* Reading Seminar in American History. 3 credits, max 15. Historiographical and bibliographical study of special areas of American history.

HIST 5140* Reading Seminar in European and World History. 3 credits, max 15. Historiographical and bibliographical study of special areas of European and World history.
HIST 5220* Research Seminar in American History. 3 credits, max 15. Research in selected problems in American history.

HIST 5240* Research Seminar in European and World History. 3 credits, max 15. Research in selected problems in European and World history.

HIST 6000* Doctoral Dissertation. 1-19 credits, max 30. Prerequisite(s): Admission to candidacy. Advanced research in history.

HIST 6023* Historiography. Major writers of history, historical schools and patterns of developments in historical interpretation from the earliest times to the present.

HIST 6100* Directed Readings in History. 1-3 credits, max 36. Prerequisite(s): Graduate student standing. Readings in selected topics in history to develop factual, analytical, and bibliographical command of subject. Required for students in Plan III of MA program.

HIST 6130* Graduate Studies in History. 3 credits, max 39. Prerequisite(s): Graduate student standing. 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.

Honors College (HONR)

HONR 1000 Introductory Honors Topics. 1-3 credits, max 6. Prerequisite(s): Honors Program participation. Introduction to topics in various disciplines by faculty from the undergraduate colleges for freshman and sophomore students in the University Honors Program.

HONR 1013 (H) The Ancient World. Prerequisite(s): Honors Program participation. 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.

HONR 1023 (H) The Middle Ages and Renaissance. Prerequisite(s): Honors Program participation. 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. No degree credit for students with prior credit in HONR 2113.

HONR 1033 (H) The Early Modern World. Prerequisite(s): Honors Program participation. 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. No degree credit for students with prior credit in HONR 2223.

HONR 1043 (H) Romanticism to Postmodernism: 19th and 20th Centuries. Prerequisite(s): Honors Program participation. 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. No degree credit for students with prior credit in HONR 2223.

HONR 1093 (A) Patterns and Symmetry in Mathematics. Prerequisite(s): Honors Program participation. 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.

HONR 2013 (S) Honors Law and Legal Institutions. Prerequisite(s): Honors Program participation. 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.

HONR 2023 (D,S) Constitutional Dimensions of Diversity. Prerequisite(s): Honors College participation. 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.

HONR 2063 (H) Ethical Issues Across Cultural Perspectives. Prerequisite(s): Honors Program participation. 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.

HONR 2514 Honors Scientific Inquiry. Lab 2. Prerequisite(s): Honors Program participation. 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.

HONR 3000 Advanced Honors Topics. 1-3 credits, max 6. Prerequisite(s): Honors Program participation, junior standing. Topical study in various disciplines taught by faculty from the undergraduate colleges for junior and senior students in the University Honors Program.

HONR 3013 (H,I) Holocaust Studies Seminar. Prerequisite(s): Junior standing, Honors Program participation. An interdisciplinary study of one of the problematic events 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.

HONR 3023 (H,I) Contemporary Cultures of the Western World. Prerequisite(s): Honors College participation. Interdisciplinary examination of selected cultures of Europe and the western hemisphere. Emphasis will be on identification of main characteristics of “Western” culture and their manifestations in a variety of modern societies on both sides of the Atlantic Ocean. Key values, institutions, and practices will be examined to illustrate the twin themes of commonalities and cultural diversity. The course is team taught by faculty from appropriate disciplines in a lecture and discussion format.

HONR 3033 (I,S) Contemporary Cultures of the Non-Western World. Prerequisite(s): Honors College participation. 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.

HONR 3043 (D,S) Contemporary Cultures of the United States. Prerequisite(s): Honors Program participation. 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.

HONR 3053 (D,H) Biology, Race, and Gender. Prerequisite(s): Honors College participation. 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.

HONR 4993* Honors Creative Component. Prerequisite(s): Honors Program participation, senior standing. 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.

Horticulture (HORT)

HORT 1003 Home Horticulture. Offered by correspondence only. An introduction to horticultural practices for the home gardener. Planning and care of home grounds, home orchards and vegetable gardens; selection, use and care of indoor plants. Non-majors only. Credit will not substitute for required courses.

HORT 1013 (L,N) Principles of Horticultural Science. Lab 2. Basic physical and physiological processes responsible for plant dormancy, growth, flowering, fruiting, and senescence with respect to the science and art of plant production, cultivation, utilization, and/or storage of horticultural crops. Current research associated with various horticultural commodity groups.

HORT 2010 Internship in Horticulture or Landscape Management. 1-6 credits, max 6. Prerequisite(s): 24 credit hours of satisfactory performance in horticulture, landscape management, or related fields. Credit will not substitute for required courses. Graded on a pass-fail basis.

HORT 2123 (N) Environmental Issues in Horticultural Science. Impact of urban and suburban development on the environment and a study of horticultural solutions to limit or reverse environmental damage. Emphasis on horticultural design, construction, and maintenance techniques as they relate to the conservation of water, soil, native species, and ecosystems.

HORT 2513 Herbaceous Plant Materials. Lab 2. Identification, cultural requirements, and use of ornamental garden and indoor herbaceous plants.

HORT 2613 Woody Plant Materials. Lab 2. Identification, cultural requirements, and use of ornamental woody plants including deciduous and evergreen trees, shrubs and vines.

HORT 2652 Basic Floral Design. Lab 2. Fundamentals of floral arrangement and design for the home and the retail shop; basic skills useful to flower shop employment and operation.

HORT 3013 Arboriculture. Lab 2. Prerequisite(s): 2513 or NREM 2134 and SOIL 2124. Theory and practice of selecting, planting and maintaining trees, shrubs and vines in the landscape.

HORT 3084 Plant Propagation. Lab 2. Prerequisite(s): 1013 or PLNT 1213, BIOL 1404 and SOIL 2124. Principles and practices involved in propagation of plants. Anatomical, morphological and physiological aspects of sexual and asexual methods of regeneration and their importance.

HORT 3113 Greenhouse Management. Lab 3. Prerequisite(s): 1013, BIOL 1404, MATH 1483 or 1513 or above. Commercial greenhouse operation with emphasis on horticultural plant production aspects; environment, growing media,
fertilizers and application methods, watering, pest and disease control, chemical growth regulators, production costs.

HORT 3153 Turf Management. Prerequisite(s): 1013, SOIL 2124 and 2 hours plant science. Selection, establishment and maintenance of grass species and other plant materials for special use areas.

HORT 3213 Fruit and Nut Production. Prerequisite(s): BIOL 1403. Commercial production of fruits and nuts, with emphasis on pecan, apple, peach, strawberry, blueberry and blueberry. A two-day field trip is required.

HORT 3253 Personnel and Financial Management for Horticulture. Prerequisite(s): 1013 or LA 1013 and one upper division HORT or LA course. Preparing and executing an operational budget in a horticultural service industry and methods for maintaining an effective work force.

HORT 3433* Commercial Vegetable Production. Prerequisite(s): 1013, SOIL 2124 and Bchl 1403. Principles and production of marketable vegetables and marketing of vegetable crops.

HORT 3513 Landscape Irrigation. Lab 2. Prerequisite(s): 1013 or LA 1013. Basics of landscape irrigation with an emphasis on residential irrigation design, maintenance and installation.

HORT 3612 Bidding and Estimating. Prerequisite(s): 1013 or LA 1013 or NREM 1114 or PLNT 1213. Bid preparation and job cost estimation for landscape materials and services. Estimating take-offs, plant material and landscape estimates, budgeting and pricing.

HORT 3713 Urban Horticulture Production. Prerequisite(s): 1013. 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.

HORT 4053 (I) International Experience in Horticulture. Participation in international travel to develop an understanding of different horticultural systems and technologies used outside the U.S.

HORT 4313* Commercial Flower Production and Marketing. Lab 3. Prerequisite(s): 3113. Commercial production of cut flower, pot plant and bedding plant crops. Application of plant growth physiological principles to crop culture, crop production costs and marketing.


HORT 4543* Sustainable Nursery Production. Lab 2. Prerequisite(s): 2613 and SOIL 2124. Sustainable commercial production of field- and container-grown woody ornamental crops.

HORT 4713* Public Garden Management. Lab 4. Prerequisite(s): 1013. 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.

HORT 4773 Applied Landscape Planning. Lab 3. Prerequisite(s): 2313 or 2413. Concepts of landscape contracting, design and planning. Preparation of plans, cost estimates, with an emphasis on residential landscapes and use of plant materials. No credit for students in the landscape architecture or landscape contracting programs.

HORT 4901* Horticulture in Controlled Environments Laboratory. Lab 2. Prerequisite(s): 4903 or concurrent enrollment. 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. Offered through web-based instruction.

HORT 4903* Horticulture in Controlled Environments. Prerequisite(s): CHEM 1215 and HORT 3113. Designing, constructing, monitoring, and manipulating controlled environments for efficient horticultural production. Offered through web-based instruction.

HORT 4933 Principles of Sustainable and Organic Horticulture. Prerequisite(s): 1013. Principles and practices of sustainable, organic, and alternative horticultural management systems. Offered through web-based instruction.

HORT 4943* International Horticulture. Prerequisite(s): 1013. 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. Offered through web-based instruction.

HORT 4953* Plant Growth and Development. Prerequisite(s): 1013 and BOT 1404. 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. Offered through web-based instruction.

HORT 4963* Horticulture Physiology. Prerequisite(s): CHEM 1215 and BIOL 1114. Physiology of horticultural plants, including water relations, respiration, photosynthesis, and growth and development. Offered through web-based instruction.

HORT 4973* Sustainable Landscape Management. Prerequisite(s): 1013 or LA 1013. The ecological principles and landscape resources supporting decision-making for sustainable landscape management. Retrofitting of existing development for enhanced sustainability, including equipment selection, stormwater management, use of successional landscapes, permaculture, and organic methods. Offered through web-based instruction.

HORT 4990* Horticultural Problems. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Problems related to pomology, oliculture, nursery production, landscape design, or the culture, sales and arrangement of flowers.


HORT 5020* Graduate Seminar. 1-2 credits. Prerequisite(s): Graduate standing. Proposal and results seminars for graduate programs.

HORT 5110* Advanced Horticultural Problems. 1-12 credits, max 20. Selected research problems in horticulture, floriculture, landscape design; nursery production, oliculture and pomology.

HORT 5133* Temperature Stress Physiology. Prerequisite(s): BIOC 3653, BOT 3463 or consent of instructor. 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.

HORT 5233* Experimental Horticulture. Methods of conducting research with horticultural crops, including organization and plans, field plot techniques and analysis of data.

HORT 5422* Flowering and Fruiting in Horticultural Crops. Prerequisite(s): BOT 3463. Environmental, chemical and cultural factors affecting the flowering and fruiting of horticultural crops.

HORT 5433* Postharvest Physiology. Prerequisite(s): BOT 3463 and 3460. Physiological causes for post-harvest changes in horticultural crops (ripening and senescence) and the basis for certain postharvest treatments (precolling at harvest, controlled atmosphere storage, refrigeration, and packaging techniques). Commodity-specific postharvest phenomena.

HORT 5443* Basic Laboratory Experimentation. Lab 3. Principles and theory of safe laboratory practice and experimentation. Techniques for developing and optimizing plant cell culture, 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.

HORT 6000* Doctoral Research and Dissertation. 1-12 credits, max 20 for crop science; max 24 for environmental science; max 30 for plant science. Research on dissertation problems required of PhD candidates in multidisciplinary programs.
HRAD 3213 Hospitality and Tourism Management and Organizations. Prerequisite(s): 30 credit hours completed. Fundamentals of mineralogy and geology, the study of mineral characteristics and properties, examination of the characteristics of specific minerals, and the practical application of these characteristics to the mining industry.

HRAD 3120 Special Events Management. 1-3 credits, max. 12. Prerequisite(s): Restricted to HRAD majors, consent of instructor. Study of special event planning, implementation and evaluation. The interaction between the staff, customer, group leaders, and others necessary to implement a successful special event. Additional focus on catering through hotels, restaurants or private companies.

HRAD 3193 Hospitality Training Program Development. Prerequisite(s): 30 credit hours completed. Study of the design, delivery and evaluation of training programs for hospitality and tourism organizations. Needs assessment, performance objectives, instructional design, and a variety of presentation methods. Organizational and individual development.

HRAD 3232 (L) International Travel and Tourism. 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.

HRAD 3330 Pre-Professional Experience. 1-3 credits, max. 6. Prerequisite(s): Consent of instructor. Supervised experience in an organization related to a future career in the hospitality industry. Human resource, customer service, management, or supervisory experience in multiple aspects of the unit.

HRAD 3344 Fine Dining and Theme Restaurant Management. Lab 4.5. Prerequisite(s): 3213 and 3575. Management applications to fine dining restaurants; lab practice in Ranchers Club teaching restaurant.

HRAD 3403 Lodging Services Management. The organization and management of lodging properties. Examination of the principles of concierge, bell staff, retail outlets and business services.

HRAD 3411 Hospitality and Tourism Pre-Internship Seminar. Prerequisite(s): HS 1112 or 3112 (or concurrent). Preparation in written communication, resumes, interviews, securing an internship, professional behavior and ethics in the hospitality and tourism industries.

HRAD 3443 Hospitality and Tourism Industry Internship. Prerequisite(s): 2643, 2665, 3411 and 4480 of documented hospitality or tourism work experience. Supervised experience in an approved work situation related to a future career in the hospitality or tourism industry. Management and supervisory experience in multiple aspects of a hospitality or tourism organization.

HRAD 3473 Mechanical Equipment and Facility Management. Prerequisite(s): 30 credit hours completed. Fundamentals of building mechanical systems, maintenance and facilities management. The theory and interaction of illumination electric wiring, plumbing, heating, ventilation, air conditioning systems. Principles of facility management in the hospitality industry related to coordination of the physical space with guest services.

HRAD 3543 Lodging Property Management. Prerequisite(s): 2643. The organization, duties, and administration of hotel support departments. The various jobs in lodging housekeeping, engineering, security, and convention and meeting services. Facilities management, purchasing, and furnishing, fixtures and equipment concepts.

HRAD 3573 Franchising and Quick Service Restaurant Management. Study of the history and transformation of hospitality industry chains. The organization of chains, fundamentals of franchising, sales and growth, evaluation of franchise financial performance, and unit ownership characteristics. Quick service restaurant organization, guest service, costs controls, sanitation, personnel management, purchasing, marketing, and time management.

HRAD 3575 Service Management in Hospitality Operations. Lab 4. Prerequisite(s): 2655. Development of service management skills for the hospitality industry. Covering leadership behavior, motivation; communication training, staffing and professionalism with an emphasis on food service.

HRAD 3623 Purchasing and Cost Control for Hospitality and Foodservice. Lab 2. Prerequisite(s): 2283. 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.

HRAD 3643 (S,D) Geotourism. A unique tourism destination will be examined and evaluated in depth related to the authenticity of its environment, culture, aesthetics, and heritage emphasized through specific geotourism practices.

HRAD 3663 Hotel Food and Beverage Operations. Prerequisite(s): 30 credit hours completed. Examination of the production, presentation, and service styles of hotel food and beverage services. Planning, producing and marketing hotel food and beverage services.

HRAD 3721 Overview of Beverages in the Hospitality Industry. Prerequisite(s): Proof of minimum age 21. Overview of the international dimensions, history, classifications, production techniques, distribution, and quality factors of beverages such as wines, distilled spirits, beers, and non-alcoholic beverages used in the hospitality industry. Responsible alcohol beverage service and management techniques.

HRAD 3783 Hospitality Industry Human Resources Management. Prerequisite(s): 30 credit hours completed. Theories and practices used for personnel management in the hospitality industry. The organization of a human resources department, hiring, discipline, compensation, job analysis and performance evaluation.

HRAD 4090 International Hospitality Studies. 1-18 credits, max. 18. Prerequisite(s): 45 credit hours completed. 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.

HRAD 4102* Hospitality Law and Ethics. Prerequisite(s): 30 credit hours completed. Examination of the laws regulating the hospitality industry. The interrelationships between law, the hospitality industry, and the public. Exploration of ethics, how legal principles apply in a global environment, and fundamental principles of tort and contract law.

HRAD 4120* Advanced Special Events Management. 1-3 credits, max. 6. Prerequisite(s) Instructor and restricted to HRAD majors. 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.

HRAD 4163 Hospitality and Tourism Marketing. Prerequisite(s): 30 credit hours completed. Strategies for marketing and decision-making in the hospitality and tourism industries. Customer identification, consumer behavior, competition, and product, promotion, placement and pricing strategy.

HRAD 4213* Hospitality Sales and Catering. Fundamentals of sales and catering including the sales department, publicty and advertisement, policies, and techniques used to sell the organization in all aspects of the hospitality industry. Includes planning for versatility, customer responsiveness, cost, timing, and follow up for events.

HRAD 4263 Beverage Management and Controls. Prerequisite(s): 3575 and 3623. Foundation in beverage service, operations and management. Strategies to manage beverage and bar operations, control systems and profitability, product selection and marketing, facility requirements and responsible alcohol service.

HRAD 4293* Hospitality Small Business Development. Prerequisite(s): 3543, 3575, 3623 and 4163. The theories and procedures necessary to develop a hospitality business in the hospitality industry. Financial analysis, feasibility study, pro-forma creation, building and site construction and brand selection.

HRAD 4333* Hospitality and Tourism Financing. Prerequisite(s): 2283. The theory and practice of operational and strategic financial policy and problems in the hospitality industry. Financial information systems, fund allocation, asset management, financial structure, and analysis of the financial statements.

HRAD 4343 Fine Dining and Theme Restaurant Professional Practicum. Prerequisite(s): 3344 and application process successfully completed. Restaurant production or service professional applying management theory to in-depth practice.

HRAD 4413* Hospitality Information Systems. Prerequisite(s): 2533, 2643 and 2665. Conceptual analysis of hospitality technology systems such as food and beverage service, housekeeping, sales, property management, personnel, accounting, front office, and inter- and intra-departmental functions. The ethical implications of technology.

HRAD 4443* Advanced Hospitality and Tourism Industry Internship. Prerequisite(s): 3443, 70 credit hours completed, consent of instructor. 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.

HRAD 4453* Revenue Management in Hospitality Operations. Prerequisite(s): 3623 or concurrent enrollment and 3543. Focus on revenue management in hospitality organizations with specific emphasis on pricing and strategies, forecasting sales and trend analysis.

HRAD 4523* Integrated Capstone Seminar. Prerequisite(s): 3543 and 3576 and 4163 or concurrent enrollment and 90 credit hours completed. Integration of previous classroom, laboratory, and practical experiences through development of a comprehensive project. Additional focus on application of critical thinking, demonstration of leadership principles, interaction with industry professionals and development of an awareness of societal and ethical issues.
HRAD 4561* Hospitality Management Seminar. The issues have an impact on the hospitality industry. Exploration of the issues utilizing various strategies and a multi-disciplinary approach. Discussion and interpretation of multiple perspectives with an emphasis on critical thinking, strategic decision making, and the formulation of innovative solutions and processes to enhance the workplace.

HRAD 4563 Gastronomy. Prerequisite(s): 2665 or consent of instructor. An introduction and evolution of the ideas, philosophies and attitudes toward food production and role of the chef, restaurateur and hospitality professional.

HRAD 4573* Non-Commercial, Institutional and Contract Services in the Hospitality Industry. The organization and administration of non-commercial food and hospitality services. Business and industry, athletic venues, colleges and universities, prisons, schools, government services, hospitals, healthcare, assisted living, and other similar facilities. Additional emphasis on self operation and services provided by contract management companies. The principles associated with development of a request for proposals, analysis of proposals, services evaluation, contract liaison activities and communication.

HRAD 4610 Hospitality Leadership Symposium. 1-3 credits, max 9. Case study based course focusing on leadership and innovation in the hospitality industry. Course taught in an interactive seminar format.

HRAD 4643* Applied Human Resources in Hospitality. Prerequisite(s): 3785 and concurrent enrollment in 3443 or permission of instructor. Directed learning for effective and legal employee management within hospitality industry operations utilizing strategies for recruiting, minimizing turnover and maximizing productivity and diversity. Also incorporates a Certificate in Human Resource Management and Subscription.

HRAD 4723 Beverage Education. Prerequisite(s): Proof of minimum age 21. Emphasis on the international dimensions of the history, classifications, production techniques, distribution, and quality factors of beverages such as wines, distilled spirits, beers, and non-alcoholic beverages. Emphasis on responsible alcohol beverage service and management techniques.

HRAD 4783* Critical Issues in the Hospitality and Tourism Industry. Breadth of vision and broad perspective of contemporary issues in the management of hospitality and tourism industry organizations. Awareness of societal, economic, cultural, and international issues and their impact on hospitality and tourism organizations.

HRAD 4833* Casino and Gaming Management. Prerequisite(s): 2152 and 2283. Focus on the management of casino and gaming operations including the history and trends of gaming, current issues, cultural influences and social consequences of casino, lottery and pari-mutual segments. Also theory and practice in the analysis of gaming operations in the areas of casino management, marketing, accounting/controls, security, human resources and law.

HRAD 4850* Special Unit Course in Hotel and Restaurant Administration. 1-15 credits, max 15. Prerequisite(s): Consent of instructor. Special unit of study related to specific requirements for the MS degree.

HRAD 4900 Honors Creative Component. 1-3 credits, max 3. Prerequisite(s): College of Human Sciences Honors Program participation, senior standing. Guided creative component for students completing requirements for College Honors in the 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.

HRAD 4983* Conference and Meeting Planning. Prerequisite(s): 2643, 2665, and 2283 or consent of instructor. Planning and implementing conferences, teleconferences, conventions, special events, seminars and symposia. Designing, promoting, managing and evaluating educational events, and contract management.

HRAD 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Graduate standing and consent of adviser. Individual research interests in hospitality administration fulfilling the requirements for the MS degree.

HRAD 5030* Master’s Creative Component and Independent Study. 1-3 credits, max 3. Prerequisite(s): Graduate standing and consent of instructor. Individual research and study having relevance to the hospitality field and a positive impact on the hospitality industry.

HRAD 5111* Hospitality and Tourism Graduate Studies and Research. Prerequisite(s): Master’s degree students only or consent of instructor. Systematic introduction to the competencies of graduate education and research in hospitality and tourism education and administration.

HRAD 5213* Hospitality and Tourism Management. In-depth study of hospitality and tourism management including theory, research, operations and practical experience. Emphasis on lodging operations systems, commercial food service systems, and tourism. Analysis and synthesis of a comprehensive management philosophy consistent with theory.

HRAD 5233* Convention and Special Event Management. Meeting and event design, working with industry suppliers, on-site management, post-event analysis, computers and technology, and meetings documentation.

HRAD 5243* Retailing and Franchising in the Hospitality Industry. Entrepreneurial perspective of growth and performance of commercial and noncommercial food service and health care organizations. Challenges relative to operations management, convenience stores, quick service operations, procurement, price analysis, communication, efficient customer response, capital and human resources, competition, governmental influence, and decision-making process.

HRAD 5253* Critical Issues in Gaming. Focuses on current issues, advanced research and the theoretical constructs of the gaming industry and includes exploration of current issues, cultural influences and social consequences of casino, lottery, racing and pari-mutual segments. Students will also gain theoretical knowledge and learn to apply research skills in the analysis of gaming operations in the area of casino management, marketing, accounting/controls, security, human resources and law.

HRAD 5262* Seminar in Contemporary Hospitality Administration. Principles, theories, and methods of hospitality management applied to various types of hospitality organizations. Hospitality Administration topics of finance, human resources, marketing, technology, education and management. Supervised readings of current literature not included in regularly scheduled courses. Course taught in an interactive seminar format.

HRAD 5313* Hospitality and Tourism Information Technology. Conceptual analysis of the technology used in the hospitality industry. Investigation of technology applications, ethical implications of technology and system development practice.

HRAD 5323* Hospitality Accounting and Finance. Understanding the role of the accounting and financial function in hospitality firms. Learn how to read hospitality financial statements, to use analytic concepts as managerial tools to examine the profitability of hospitality firms and to make superior capital investment decisions, and to become familiar with major financial instruments and concepts.

HRAD 5333* Hospitality Business Analysis. Fundamental understanding of the logic and structure of business plan, and knowledge of concepts for analyzing hospitality businesses. Examination of the application of hospitality management concepts and principles within hospitality organizations, assessment of factors contributing to a company’s business orientation.

HRAD 5413* Employee Development Issues in the Hospitality and Tourism Industries. Recent theories and research in human resource management, employee development, and labor issues affecting the hospitality and tourism industry in maintaining a productive workforce.

HRAD 5423* Hospitality Customer Development Strategies. Prerequisite(s): Undergraduate marketing course. The concepts and strategies of hospitality and tourism marketing and customer development.

HRAD 5513* Hospitality Corporate Strategy. Focus on strategic decisions in hospitality businesses, and with both the content of those decisions and the processes by which managers position the businesses and strategically allocate resources to maximize its economic value under conditions of uncertain, dynamic, and competitive environments.

HRAD 5613* Service Quality in Hospitality and Tourism Management. Study of contemporary management principles in the hospitality industry. Service improvement and satisfaction in the hospitality industry through the use of total quality management. How service industries such as hospitality can use business techniques such as continuous improvement, employee involvement, measurement and organizational change to improve unit operations.

HRAD 5813* Research Methods in Hospitality and Tourism Administration. Prerequisite(s): REMS 5953 or STAT 5013. Scientific methods and current research methodologies as applied to problems in hospitality and tourism administration. Proposal planning, research design, statistical use and interpretation, and research reporting.

HRAD 5850* Special Topics in the Hospitality Industry. 1-3 credits, max 9. Special topics related to the hospitality 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.

HRAD 5870* Problems in the Hospitality Industry. 1-3 credits, max 9. Special recurring problems in the hospitality industry. Broad perspective of these issues and their application to the industry. Critical thinking skills to solve operational dilemmas.

HRAD 5992* Hospitality and Tourism Research Seminar I. Prerequisite(s): 5813 and Master’s degree students only or consent of instructor. Review and critique hospitality and tourism research articles. Address the problems encountered in communicating and presenting hospitality and tourism research papers.

HRAD 6000* Doctoral Dissertation. 1-12 credits, max 30. Prerequisite(s): Consent of major professor. Research in hospitality administration for the PhD degree.

HRAD 6111* Hospitality and Tourism Doctoral Studies and Research. Prerequisite(s): Doctoral degree students only or consent of instructor. Systematic introduction to the competencies of graduate education and research in hospitality and tourism education and administration for doctoral students.

HRAD 6113* Hospitality and Tourism Education. Prerequisite(s): Doctoral degree students only or consent of instructor. Theoretical and practical
components of hospitality and tourism education with emphasis on universities, community colleges and vocational schools.


**HRAD 6313** Tourism Policy and Planning. Examination of current international and national tourism policies, planning and development perspectives and the economic impact.

**HRAD 6413** Leadership in a Diverse Society. Comparing and critiquing leadership and diversity research, theories and practices society. Development of models for future professional practice that integrate leadership and diversity principles.

**HRAD 6513** Hotel and Restaurant Planning and Development. Theories and practices related to the acquisition, development and investment in hospitality-oriented real estate. The undertaking of site analysis, feasibility studies and building construction. Acquisitions, financing alternatives and management contract options. Current trends in hotel investing.

**HRAD 6613** Advanced Research Methodology in Hospitality and Tourism. Advanced research methodologies in hospitality and tourism. Essential concepts in contemporary research, examination of multivariate data analysis techniques in hospitality and tourism research. Development of individual research projects.

**HRAD 6680** Seminar in Food Service Management. 1-3 credits, max 9. Examination of research, practice, and future trends in food service management issues from a strategic perspective.

**HRAD 6713** Contemporary Hospitality and Tourism Theory. Prerequisite(s): Doctoral degree students only or consent of instructor. 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 field on tourism management that will prepare students to assess fundamental research questions, opportunities, and limitations of the research.

**HRAD 6780** Seminar in Lodging Management. 1-3 credits, max 9. Examination of lodging management issues from a strategic perspective. Latest developments in research, practice, and future trends in the lodging industry.

**HRAD 6800** Seminar in Travel and Tourism Management. 1-3 credits, max 9. Study of the latest developments in travel and tourism research and management.

**HRAD 6993** Advanced Hospitality and Tourism Research. Prerequisite(s): Graduate level basic and/or intermediate research methods and intermediate statistics and doctoral degree student or consent of instructor. 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.

### Human Development and Family Science (HDFS)

**HDFS 1101** Relationships 101. An applied course designed to actively involved students in the exploration of topics which influence the development of positive relationships. Topics include gender differences, relationship principles, family of origin and personal needs. Application to personal and professional settings.

**HDFS 1112** Introduction to Human Development and Family Science. Exploration of the philosophy of human development and family science including topics related to academic achievement, risk and resilience, careers in HDFS, and specific fields of study within HDFS.

**HDFS 2113 (S)** Lifespan Development. Study of human development within diverse family systems. Taught from a life span perspective.

**HDFS 2114 (S)** Lifespan Human Development: Honors. Prerequisite(s): Honors students only. Honors course critically examining the study of human development within diverse family systems. Taught from a lifespan perspective.

**HDFS 2123 (D)** Developmental Disabilities: Issues Across the Lifespan. Prerequisite(s): 2112. Intersections of biological and environmental influences on patterns of atypical development across the lifespan. Assumes a basic knowledge of cultural diversity and research methods employed in human development. Directed observation of persons with developmental disabilities.

**HDFS 2211** Early Childhood Field Experience I. Prerequisite(s): concurrent enrollment in 2233 and 2243. Full admission to Professional Education. Clinical experience working with children ages birth through 5, including observation of children in classroom contexts and design and teaching of creative activities with groups of students.

**HDFS 2213** Human Sexuality and the Family. Sexual development emphasizing personal adjustment and interaction with family and culture.

**HDFS 2223** Foundations in Early Childhood. Lab 3. Prerequisite(s): 1112 and 2113. Introduction to early childhood. 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.

**HDFS 2233** Development of Creative Expression, Play and Motor Skills in Early Childhood. Prerequisite(s): 2113 and Full admission to Professional Education or consent of instructor. 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.

**HDFS 2243** Infant-Toddler Programming. Prerequisite(s): 2113, and Full admission to Professional Education or consent of instructor. Program planning, implementation and evaluation of developmentally appropriate programs for infants and toddlers. Directed observation and participation in infant and toddler programs.

**HDFS 2433 (S)** Relationship Development and Marriage. Theory and research on the formation and development of interpersonal relationships from dating through courtship and marriage.

**HDFS 2453** Management of Human Service Programs. Prerequisite(s): 2112 and 2113. Development of professional skills for the human services. Intakes, interviews, assessment, program planning, case management, advocacy, facilitating change, community collaboration and using databases.

**HDFS 2850** Special Unit Courses in HDFS. 1-6 credits, max 6. Various units taught by specialists in Human Development and Family Science.

**HDFS 3021** Topics in Early Childhood Education. Current selected problems or topics in early childhood education which influence individual and family risk and resilience, including NCLB and related legislative issues and other topics that are of interest and importance to students enrolled in the semester.

**HDFS 3023** Child Development - Birth to 3. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. 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.

**HDFS 3024** Literacy Assessment and Instruction in Early Childhood Education. Prerequisite(s): Concurrent enrollment in 2123, 4363, 4323, 4313 and full admission to Professional Education. 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 practice.

**HDFS 3033** Child Development - 4 to 8. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. Physical, cognitive, social/emotional and personality growth and development during early childhood. Major theories of development and current research and historical approaches to examining growth and development in ages 4-8. Web-based instruction.

**HDFS 3043** Professional Development for Early Childhood Educators. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. 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.

**HDFS 3053** Child Guidance and Classroom Environments. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. 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 personal experience to suit their own unique skills and strengths. Web-based instruction.

**HDFS 3063** Health, Safety and Nutrition. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. 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 safety and hygiene guidelines and future guidelines, food allergies and intolerances, appropriate feeding practices. Web-based instruction.

**HDFS 3103** Social Development and Social Studies in Early Childhood. Prerequisite(s): Concurrent enrollment in 3213, 3223, 3233 and 3202; full admission to Professional Education. Developmentally appropriate social studies curriculum and instruction for young children; content selection, lesson planning, teaching methods, materials and evaluation strategies.
HDFS 3123 (S) Parenting. Prerequisite(s): 2113 or other life-span development course. Examination of the fundamental issues and special topics in parent child relationships across the life span. Current theory and empirical research in multiple contexts of family, school and community.

HDFS 3202 Early Childhood Field Experience II. Prerequisite(s): Concurrent enrollment in 3103, 3213, 3223, 3233; full admission to Professional Education. Field experiences in early childhood settings working with children 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.

HDFS 3203 (J) Children’s Play: A World Perspective. An examination of children’s play in contemporary international cultures. Play in children from birth through late childhood will be reviewed; social and cognitive outcomes will be analyzed as related to complex, modern world systems.

HDFS 3213 Literacy Development in Early Childhood Education. Prerequisite(s): Concurrent enrollment in 3103, 3202, 3223 and 3233 and full admission to Professional Education. Theoretical and research based rationale for an integrated language arts and an interdisciplinary approach to literacy development as it addresses writing, reading and oral language for infants through age eight. Use of children’s literature.

HDFS 3223 Mathematics and Science in Early Childhood. Prerequisite(s): Concurrent enrollment in 3103, 3213, 3233, and 3202; full admission to Professional Education. Mathematics and science teaching and curriculum in preK through 3rd grade. Content and materials appropriate for preK through 3rd grade, mathematics and science curricula, instructional practices, and assessment techniques for young children. Content selection and organization, lesson planning, teaching and assessment materials.

HDFS 3233 Guidance and Classroom Management in Programs for Young Children. Prerequisite(s): Concurrent enrollment in 3103, 3213, 3223, and 3202; and full admission to Professional Education. Effective guidance practices in group settings; development of an application of theoretical models. Various guidance models will be examined. Relevant theories, influential research and developmentally appropriate guidance techniques that facilitate the development of pro-social behaviors.

HDFS 3283 Curriculum Development for Children Ages Birth to 3. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 3063. 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.

HDFS 3273 Curriculum Development for Children Ages 4-8. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 3063. 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.

HDFS 3283 Assessing Young Children and their Environments to Enhance Development. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 3063. 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.

HDFS 3293 Understanding and Adapting for Developmental Differences. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 3063. Knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among family members and service providers. Web-based instruction.

HDFS 3303 Administration and Supervision in Early Childhood Settings. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023. 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 ramifications, and professionalism in the field. Best practices in staff selection, training, supervision, and evaluation.

HDFS 3313 Technology and Young Children. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. 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.

HDFS 3323 Diversity in the Lives of Young Children and Families. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program; SOC 1113; PSYC 1113; and HDFS 2113 or equivalents. 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.

HDFS 3333 Working with Families. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 2113. Application of an ecological model to the understanding of variation in parental roles, perspectives, relationships, approaches, and challenges. Web-based instruction.

HDFS 3413 (S) Infant and Child Development. Prerequisite(s): 2113. Examination of continuity and change in physical, cognitive, social and socioemotional development from the prenatal period through early middle childhood (age nine). Diverse contexts, directed observation of infants and children.

HDFS 3423 (S) Adolescent Development in Family Contexts. Prerequisite(s): 2113. Development of the adolescent physically, socially, individually and emotionally with emphasis on the search for identity, sexuality, vocational choice and interpersonal relations. Observation of adolescents.

HDFS 3443 (S) Family Dynamics. Prerequisite(s): 2113. Applying family theories and current research to the examination of dynamics of diverse families across the life course and within the social context.

HDFS 3513 Research Methods Lab. Lab 2. Prerequisite(s): STAT 2053 and EDUC 3151. Co-requisite for HDFS 3511. Introduction to and practice using SPSS data analysis software; exercises in and critique of scientific writing using American Psychological Association (APA) style.

HDFS 3513 Research Methods in Human Development and Family Science. Prerequisite(s): STAT 2053, ENGL 3323, co-requisite: HDFS 3511. Examination of fundamentals of scientific method as applied to research in human development and family science. Research design, sampling and measurement. Analytical, evaluative, and interpretive skills needed to understand the professional literature. Application of statistical analysis to research in human development and family science.

HDFS 4000 Senior Thesis. 1-6 credits, max 6. Prerequisite(s): 4743, STAT 2015, senior standing, consent of instructor. Supervised research for the bachelor’s degree.

HDFS 4013 Practicum I in Early Childhood. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 3063. 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.

HDFS 4023 Practicum II in Early Childhood. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3023, 3033, 3043, 3053, 4013. 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.

HDFS 4033 Practicum III in Early Childhood. Prerequisite(s): Admission to Great Plains IDEA Early Childhood Non-certification program and HDFS 3273, 3283, 3293, 3313, 3323, 3333, and 4013. 15 week experience of practical application of developmentally appropriate early childhood teaching techniques and skills, actual teaching experience and developmental feedback. Observation and evaluation of classroom experiences, environmental design, classroom management, and parent communication. Web-based instruction.

HDFS 4223 Preparation for Field Experience at Primary Level. Prerequisite(s): Concurrent enrollment in 4226 and 4333, and full admission to Professional Education. Decision-making, priority-setting, self-assessment, classroom organization and management, selection of appropriate content, and teaching strategies in public schools and state accredited programs.

HDFS 4313 Early Childhood Field Experience III. Prerequisite(s): Concurrent enrollment in 2123, 3024, 4363, 4323; full admission to Professional Education. Field experience in pre-kindergarten settings through third grade. Develop philosophiological perspectives of teaching, consider effective parent-teacher relationships, and connect with the broader community as a resource context for teaching and learning. Plan and teach an integrated thematic curriculum unit for prekindergarten through grade three as part of the field component. Graded on a pass-fail basis.

HDFS 4323 Family, School and Community. Concurrent enrollment in 2123, 3024, 4333, and 4313; full admission to Professional Education. Examination of the role of the early childhood professional in broader society contexts such as policy, advocacy, research and funding.

HDFS 4339 Student Teaching in Early Childhood Education. Prerequisite(s): Concurrent enrollment in 4333, and full admission to Professional Education. A prekindergarten through grade three classroom
teaching experience under the direction of a certified early childhood teacher and an early childhood education faculty member.

HDFS 4363 Integrated Curriculum in Early Childhood Education. Prerequisite(s): Concurrent enrollment in 2123, 3024, 4313, and 4323; full admission to Professional Education. Develop philosophical perspectives of teaching, consider effective parent-teacher relations, and connect with the wider community. As a result, consider the context for their teaching plan and teach an integrated, thematic curriculum unit for prekindergarten through grade three. Selection of appropriate content, and teaching strategies in public schools and state accredited programs.

HDFS 4373* Early Childhood Health & Well-being. Prerequisite(s): 2113. Examination of issues in early childhood health and well-being, including physical health; infant and early childhood mental health; nutrition, exercise, and childhood obesity; safety; resilience; and exposure to biological and psychosocial risks that impact health. Exploration of policies and programs related to children's health and well-being, as well as identification of practical implications for promoting children’s health and well-being.

HDFS 4413 (S) Adulthood and Aging. Prerequisite(s): 2113. Study of the unique characteristics of development during the middle and later years of development. Emphasis on the aging process and the effects on the individual and family.

HDFS 4423 Family Risk and Resilience. Prerequisite(s): 3443. Examination of selected theoretical approaches; areas of family risk; protective factors; individual and family qualities relating to resilience; and prevention and intervention strategies.

HDFS 4433* Family Life Education. Prerequisite(s): 2113 and 3123 and senior standing. Philosophy and principles of family life education. Planning, implementing, and evaluating family life programs in community and education settings. Field experience.

HDFS 4443 (S) Fatherhood: Developmental, Social and Historical Perspectives. Developmental, social and historical perspectives of fatherhood. Context and contemporary issues relating to fatherhood in the U.S. The contribution of involved fathering to men's adult development, the roles and responsibilities of fathers, skills for effective fathering, and father and child interaction in relation to both father and child adjustment and well being.

HDFS 4473 Policy, Law and Advocacy. Prerequisite(s): 3513. The study of local, state, and federal legislation, regulations, social policies, and advocacy that affect children and families. Domestic relations, child welfare, health, education, social services, employment and housing.

HDFS 4520 Student Teaching in Family and Consumer Sciences Education. 1-9 credits, max 9. Prerequisite(s): Full admission to Professional Education. 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.

HDFS 4521 HDFS Child and Family Services: Pre-Internship. Prerequisite(s): 1121 and 2523 and HS 1112 or 3112 (or concurrent) and senior standing and consent of adviser and instructor. Preparatory workshop for HDFS Child and Family Services internship.


HDFS 4543 (S) Family and Interpersonal Relationships in Adulthood. Prerequisite(s): 2113. Analysis of the aging process as it relates to relationships across the lifespan. Special emphasis on multigenerational family issues, peer relationships, and transitions associated with normative and non-normative life experiences.

HDFS 4563 Internship in Child and Family Services I. Prerequisite(s): 1121 and 2523 and 4521 and senior standing and consent of adviser and instructor. Supervised field experience applying HDFS knowledge and skill base. Must complete application for internship. This component of the internship includes class assignments that demonstrate application of HDFS knowledge and skill base.

HDFS 4572 Internship in Child and Family Services II. Prerequisite(s): 1121, 2523, 4521, senior standing, and consent of adviser and instructor. Supervised field experience applying HDFS knowledge and skill base. Must complete application for internship.

HDFS 4573* Introduction to Marriage and Family Therapy. 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.

HDFS 4713 Family Resource Management. Examination of individual and family management dimensions, financial, workplace, social, and community resources over the lifespan. Includes an emphasis on decision making within the family system, particularly for families with issues that affect timing and balancing of resource management.

HDFS 4750 Topics in HDFS. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Various units of work related to specific issues in Human Development and Family Science.

HDFS 4793 (S) The Family: A World Perspective. Family structure and interaction that transcend specific cultures or nationalities; examination of specific cultural and international family forms, their social issues and relevant services to meet their needs.

HDFS 4813 Dying, Death and Bereavement. 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.


HDFS 4850 Special Courses in Human Development and Family Science. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Various courses related to specific issues in Human Development and Family Science.

HDFS 4900 Honors Creative Component. 1-3 credits, max 3. Prerequisite(s): College of Human Sciences Honors Program participation, senior standing. 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.

HDFS 4950 Research Practicum in HDFS. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Hands-on research experience under the direction of faculty members in various human development and family science topics. Graded pass/fail.

HDFS 5000* Master's Thesis. 1-6 credits, max 6. Research in HDFS for MS degree.

HDFS 5110* Directed Study in HDFS. 1-9 credits, max 9. Prerequisite(s): 5253, 5293, 5513 or 5523 and consent of instructor. Directed individual study in human development and family science.

HDFS 5112* Computer Applications in HDFS Research. Creating variable codebooks, data coding, data entry, variable specifications and data manipulation, merging files, and basic analysis using SPSS software. No computer experience necessary.

HDFS 5133* Research Methods and Design in Human Development and Family Science. Prerequisite(s): Admission to the HDFS graduate program. Research processes, design, and methods in human development and family science. Application of research tools and methods to investigate theoretical, empirically-based, or field-based research issues with a focus on individual and family risk and resilience. Development of a research proposal.

HDFS 5153* Policy in Human Development and Family Science. 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.

HDFS 5160* Master's Creative Component. 1-6 credits, max 6. Prerequisite(s): 5253, 5293, 5513 or 5523 or equivalent and consent of instructor. Creative application of student’s knowledge to solve a problem of interest in HDFS.

HDFS 5163* Creative Component in HDFS: Development and Application. Prerequisite(s): 5133 and 5290. Development and implementation of a creative component project related to an area of human development and family science. Interfaces with practicum experience and involves the integration of theory, research, and application.

HDFS 5173* Program Design, Implementation, and Evaluation in Human Development and Family Science. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. An exploration of the principles and methods of program design, implementation, and outcome evaluation of family and community programs. Web-based instruction.

HDFS 5183* Practicum in Developmental and Family Sciences Research. Prerequisite(s): Admission to graduate study in HDFS, nine hours of graduate credit in HDFS, and consent of instructor. Supervised research experiences in human development and family sciences.

HDFS 5190* Teaching Practicum. 1-3 credits, max 3. Prerequisite(s): Six hours of graduate course work and consent of instructor. Teaching human development and family sciences; content and techniques.

HDFS 5203* Family Systems. Research and theory related to family functioning throughout the life cycle, especially financial decision making during crisis and conflict. Factors that influence family values, attitudes and behaviors from a multicultural perspective. New and emerging issues critical to family functioning.

HDFS 5213* Human Development in the Context of Family and Community. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. An examination of human development including the cognitive, social, emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Web-based instruction.
HDFS 523* Resilience in Individuals and Families. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. Exploration of resilience approaches to the study of families and human development across the life cycle. Web-based instruction.

HDFS 524* Infant Behavior and Development. Survey of research and theory pertaining to infant development, including behavioral genetics, perception, cognition and learning, social and emotional development, and assessment.

HDFS 525* Theory and Research: Social and Emotional Development. 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.

HDFS 526* Theory and Research: Cognitive and Language Development. 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.

HDFS 527* Parent Education. Prerequisite(s): Consent of instructor. Parent-child relations, parenting strategies, and other major components of empirically validated parent education programs that lead to certification. Supervised practice.

HDFS 528* Developmental Disabilities. Recent theories and research related to developmental disabilities, including mental handicapping conditions and their impact on human development.

HDFS 529* Practicum. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Supervised experience in various settings relevant to human development and family sciences.

HDFS 530* Developmental Contexts of Normative Behavior Problems. Examination of the theoretical research regarding biological, developmental, and contextual factors associated with normative behavior problems. Contexts include families, neighborhoods, peers and schools. A lifespan perspective examining the origins and course of individual patterns of maladaptation, such as aggression, delinquency, social withdrawal, anxiety and depression. Addresses prevention of and intervention with normative adjustment difficulties.

HDFS 532* Issues in Early Childhood. Systematic examination and in-depth reflection on selected issues and trends in early childhood education.

HDFS 533* Early Childhood Education History and Theory. The history of early childhood education and theoretical approaches for planning educational programs, and learning experiences for young children.

HDFS 534* Developmental and Family Assessment. Applications of qualitative and quantitative approaches to observation and developmental assessment 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.

HDFS 535* Diversity in Early Childhood. 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.

HDFS 536* Early Childhood Development and Education. 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.

HDFS 537* Early Childhood Administration. Examination of the administration, management, and supervision of programs for young children. Legal, social, and economic conditions affecting programs.

HDFS 540* Professional Seminar in Gerontology. 3 credits, max 3. 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.

HDFS 540* Perspectives in Gerontology. An overview of current aging issues including current focus of gerontology theory and research; critical social and political issues in aging, the interdisciplinary focus of gerontology, current career opportunities, and aging in the future. Web-based instruction.

HDFS 541* Ethics and Aging. 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.

HDFS 541* Adult Development and Aging. The biological, psychological and social factors associated with aging. Special emphasis on developmental adaptation in late and very late life.

HDFS 542* Research Perspectives in Gerontology. 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.

HDFS 543* Theories of Aging. 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.

HDFS 544* Interpersonal Relationships. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. An examination of interpersonal relationships in context, including theoretical perspectives, research methods, relationship forms, and relationship processes. Web-based instruction.

HDFS 545* Aging in the Medical Context. 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 and pre and older persons face health issues and decisions.

HDFS 547* Developments and Innovations in Human Development, Family Science, and Early Childhood Education. 1-3 credits, max 3. 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.

HDFS 548* Aging Network Seminar. Personal, academic, and professional development in preparation for a career in the aging service network. Primary focus on networking with applied aging researchers and aging service providers.

HDFS 549* Aging and Families. Theories and research related to individual and family adjustments in later life affecting older persons and their intergenerational relationships. Critical issues include marriage, divorce, remarriage, adult children and their parents, grandparenting, and alternative family forms.


HDFS 552* Family Theory. Theoretical frameworks and processes in family science. Overview of the interface between theory, research, and application in family science.

HDFS 554* Coping with Family Crises. Strategies for helping families deal with various family crises including illness, death and divorce. Focus on dealing with these from a family systems approach.

HDFS 555* Perspectives on Parenting and Parent Education. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. An examination of theories, models, methods, research, and skills related to parenting and parent education. Web-based instruction.

HDFS 556* Community and Family. Prerequisite(s): Admission to the HDFS Graduate Program. 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.

HDFS 557* Adolescent in Family Context. 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.

HDFS 558* Human Sexuality. Multiple aspects of human sexuality including physiological and psychosexual development and response, sexual relationships, and sexual dysfunction.

HDFS 560* Pre-Practicum in Marriage and Family Therapy: Counseling Skills. Prerequisite(s): Admission to the marriage and family therapy specialization and consent of instructor. Pre-clinical experience for students in the marriage and family therapy (MFT) specialization, emphasizing counseling skills and structured observations.

HDFS 561* Pre-Practicum in Marriage and Family Therapy: Group Processes. Prerequisite(s): Admission to marriage and family therapy specialization and consent of instructor. Pre-clinical experience for students in the marriage and family therapy specialization emphasizing group processes, designing and running therapy groups.

HDFS 561* Theoretical Models of Marriage and Family Therapy. An introduction to the historical context of marriage and family therapy. An overview of the major schools of marriage and family therapy and emerging modes of therapy, with particular focus on the marriage and family therapy (MFT) specialization, emphasizing counseling skills and structured observations.

HDFS 562* Systems Theory and Applications to the Family. 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.

HDFS 563* Couples Treatment in Marriage and Family Therapy. Prerequisite(s): Graduate standing or consent of instructor. 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.

HDFS 564* Child and Adolescent Treatment in Marriage and Family Therapy. Prerequisite(s): Graduate standing or consent of instructor. 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.

HDFS 565* Systemic Approaches to Psychopathology and Psychopharmacology. Prerequisite(s): Graduate standing or consent of
instructor. Overview of major mental disorders and other conditions that maybe the focus of clinical mental health treatment. Treatment issues and an introduction to psychopharmacology.

HDFS 5633* Professionalism and Ethics in Marriage and Family Therapy. Prerequisite(s): Graduate standing and consent of instructor. 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.

HDFS 5673* Family Dynamics of Addiction. Prerequisite(s): Graduate standing and consent of instructor. An examination of the theory and research related to addictive behaviors and couple and family relationships, and an exploration of the techniques and strategies of relational intervention for addiction.

HDFS 5690* Marriage and Family Therapy Practicum. 1-3 credits, max. 18. Prerequisite(s): Admission to the marriage and family therapy program and consent of instructor. Supervised clinical experience for students in the marriage and family therapy specialization.

HDFS 5693* Child Treatment Practicum in Marriage and Family Therapy. Prerequisite(s): Admission to the marriage and family therapy program and consent of instructor. Supervised clinical experience focusing on the treatment of children within a family context.

HDFS 5713* Individual and Family Resource Management. Survey course of personal, family, financial, and 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.


HDFS 5753* Leadership and Management of Community Service Programs. Prerequisite(s): Admission to the HDFS GPIDEA Graduate Program. An examination of leadership and management concepts related to the effective administration of community-based agencies. Web-based instruction.

HDFS 5813* Practicum in Human Development and Family Science. Prerequisite(s): Admission to graduate study in HDFS, 9 hours of graduate credit in HDFS, and consent of instructor. Supervised experiences in child development, family studies or health-related fields.

HDFS 5913* Foundations and Principles of Family and Community Services. Prerequisite(s): Admission to the HDFS Great Plains IDEA Graduate Program. An introduction to the field of family science and related professions that involve working with individuals and families in communities. Web-based instruction.

HDFS 5923* Dynamics of Family Interaction. Prerequisite(s): Admission to the Great Plains IDEA Graduate Program. An examination of theories of family function and dysfunction, techniques of assessment, and models of family intervention. Web-based instruction.

HDFS 6000* Doctoral Dissertation. 1-12 credits, max 30. Prerequisite(s): Consent of instructor. Research in human environmental sciences for the PhD degree under supervision of a graduate faculty member.

HDFS 6101* Doctoral Seminar in Human Development and Family Science. Prerequisite(s): 5253, 5293, 5513, 5523 or equivalent and consent of instructor. Selected topics in human development and family science focusing on current research, theory or application. Web-based instruction.

HDFS 6110* Doctoral Directed Study in HDFS. 1-9 credits, max. 9. Prerequisite(s): 5253, 5293, 5513, 5523 or equivalent and consent of instructor. Doctoral level directed individual study in human development and family science.

HDFS 6123* Advanced Research in Risk and Resilience. Prerequisite(s): 5133 and 5253 or 5293, 5513 or 5523. Integration of current research and theory in human development and family science to address current issues in individual and family risk and resilience.

HDFS 6133* Advanced Research Methods in Human Development and Family Science. Prerequisite(s): One course in research methods and one in statistics. Research design and analysis of data appropriate to the areas of human development and family science.

HDFS 6143* Structural Equation Modeling for HDFS Applications. Prerequisite(s): 6133, REMS 6013 or equivalents. 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.

HDFS 6153* Multilevel Modeling for HDFS Applications. Prerequisite(s): 6133 and REMS 6013 or equivalents. 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.

HDFS 6190* Research Internship. 1-15 credits, max. 15. Prerequisite(s): Consent of instructor. Special research studies under the supervision of a graduate faculty member.

HDFS 6223* Risk and Resilience in Human Development. Prerequisite(s): 5253 or 5293 or equivalent course. 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.

HDFS 6273* Parent-Child Relations. 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.

HDFS 6283* Seminar in Human Development. Prerequisite(s): 5253. Selected topics in human development with special attention given to recent research literature and current theory.

HDFS 6523* Advanced Family Theory. Prerequisite(s): 5523. Family theory process, including logic, theory construction, and relating conceptual orientations to current research areas.

HDFS 6553* Marital and Couple Relationships. 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.

HDFS 6583* Seminar in Family Science. Prerequisite(s): 5513 or 5523 or consent of instructor. Current research and theory in selected topics in family science.

HDFS 6613* Contemporary Issues in Marriage and Family Therapy. Prerequisite(s): Admission to marriage and family therapy specialization. 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.

Human Resources and Adult Education (HRAE)

HRAE 4010* Occupational and Adult Education Workshop. 1-3 credits, max. 6. Professional workshops of various topics and lengths. Each workshop focuses on a particular topic from such areas as the development, use and evaluation of instructional methods and materials.


HRAE 5000* Thesis or Report. 2-10 credits, max. 10. Students studying for a master’s degree may enroll in this course 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.

HRAE 5101* Seminar. 1-3 credits, max. 6. Graduate student seminars focusing on current and critical issues and common problems relevant to occupational and adult education.

HRAE 5223* Organization and Administration of Adult Education. 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.

HRAE 5233* Needs Analysis. Techniques of conducting organizational analyses of human performance problems, including surveys, interviews, records analysis, group interaction, and task analysis.

HRAE 5340* Special Problems. 1-6 credits, max. 6. Directed independent study of special topics involving assigned readings, library research, field work or a combination of these.

HRAE 5443* Instructional Design for Training. Design and development of training to address performance problems in organizations, business and industry. In-depth study of a systematic approach to training for performance.

HRAE 5533* Human Resource Development. Introduction to training and development, including history and nature of the field, trainer roles, needs analysis, program development, evaluation, and techniques of conducting training.

HRAE 5633* Technology Application in Human Resource Development. The practice, theory, and research related to human resource development applications for technology and background information on specific technology-related topics. Development of technology applications.

HRAE 5703* Adult Learning in Diverse Settings. 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.

HRAE 5730* Special Topics in Human Resource Development. 1-3 credits, max. 6. The practice, theory and research related to a current topic in human
HRAE 5833* Global Consulting. 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.

HRAE 5880* Internship. 3-6 credits, max 6. Supervised experience working in business, industry, human service or education settings.

HRAE 6000* Doctoral Dissertation. 2-10 credits, max 15. Required of all candidates for the Doctor of Education degree in adult education and human resource development.

HRAE 6103* Foundations of Lifelong Learning. The definitions, historical and philosophical development, and the scope and function of lifelong learning.

HRAE 6110* Graduate Readings in Adult Education and Human Resource Development. 1-6 credits, max 6. Prerequisite(s): Consent of supervising professor. Supervised readings of significant literature not included in regularly scheduled courses.

HRAE 6203* Managing Adult Education Research. Analysis and application of techniques necessary for managing research projects in diverse agencies with adult learners. Practice with computer-based programs. Data sets from adult education research projects.

HRAE 6213* Lifelong Learning and Performance. 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.

HRAE 6223* Current Research in Adult Education. Analysis of the major research trends in the field of adult education. Recent research studies in the field.

HRAE 6233* Critical Issues in Adult Education. Exploration of current issues of concern to adult educators from diverse settings.

HRAE 6330* Special Topics in Adult Education. 1-3 credits, max 9. Prerequisite(s): 5203, 5213. 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.

HRAE 6340* Independent Study in Human Resources and Adult Education. 1-3 credits, max 9. Directed independent study for doctoral students involved in a research-based project.

HRAE 6533* Organization and Development. Seminar examining the field of organization development. Emergence of the field, diagnosis, performance, change management, the client and the consultation.

HRAE 6633* Advanced Human Resource Development. Prerequisite(s): 5533. Scholarly critique of organizations as adaptive systems and the role human resource development plays in organization, process and individual performance.

HRAE 6880* Internship in Human Resources and Adult Education. 1-8 credits, max 8. Directed Field experiences related to the participant’s area of concentration. Provides opportunities for an individual to put into practice and test ideas, theories and concepts learned in graduate study.


Human Sciences (HS)

HS 1112 Human Sciences Freshman Experience. Experiences that effectively facilitate transition from high school to the College of Human Sciences at OSU. Introduction to the developmental advising process to ensure a successful adviser advisee partnership. Career development through connections among the student’s major curriculum, general education courses, career goals, and eventual careers. Analysis of case scenarios. Required of all first semester freshmen in COHS.

HS 2080 Introduction to International Experiences. Prerequisite(s): consent of Associate Dean. Introduction to international cultures through an educational experience outside the United States.

HS 2111 Career Exploration in Human Sciences. Acquisition of career information critical to introduce students to the world of work. Career searches, processes for interviewing and acquiring careers.

HS 2210 Professional Field Experience in Human Sciences. 1-3 credits, max 3. Prerequisite(s): Consent of instructor and DHEM or HRAD or NSCI major and freshman or sophomore standing. Supervised field experience in professional setting related to Human Sciences field of study.

HS 2510 Human Sciences Freshman Research Seminar. 1-3 credits, max 6. Prerequisite(s): College of Human Sciences major; Admission to the Freshman Research Scholars program. Seminar for College of Human Sciences’ freshmen 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.

HS 2511 Dynamics of Leadership in Human Sciences. Prerequisite(s): consent of Associate Dean. 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 Human Sciences who have been accepted in the Ambassadors student organization.

HS 3002 Leadership and Collaboration in the Workplace. Prerequisite(s): Junior standing in the major in College of Human Sciences. Exploration of personal and workplace leadership, conflict resolution, workplace diversity and ethical development of transferable skills and emotional intelligence. Generalization of personal mission statements. Current leadership and collaboration strategies, issues and terminology.

HS 3080 International Experience. 1-18 credits, max 36. Prerequisite(s): Consent of associate dean. Participation in a formal or informal educational experience outside of the USA.

HS 3090 (I) Study Abroad. 1-18 credits, max 36. Prerequisite(s): Consent of Office of Study Abroad and associate dean of the College of Human Sciences. Participation in an OSU reciprocal exchange program.

HS 3112 Human Sciences First-Year Transfer Experience. Experiences that effectively facilitate transition for the first year transfer student to the College of Human Sciences at OSU. Introduction to the developmental advising process to ensure a successful adviser advisee partnership. Career development through connections among the student’s major curriculum, general education courses, career goals, and eventual careers. Analysis of case scenarios. Required of all first semester transfer students in COHS.

HS 3210 Internship in Human Sciences. 1-3 credits, max 3. Prerequisite(s): Consent of instructor and DHEM or HRAD or NSCI major and sophomore standing and HS 1112 or 3112. Supervised internship related to a Human Sciences field of study.

HS 3511 Public Policy and Human Sciences. Prerequisite(s): consent of Associate Dean. 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 Human Sciences who have been accepted in the Ambassadors student organization.

HS 4000 Honors Seminar in Human Sciences. 1-6 credits, max 6. Prerequisite(s): Junior standing and admission to the Honors Program. 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.

HS 5110* Directed Studies in Human Sciences. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed individual study in Human Sciences.

HS 5240* Master’s Creative Component. 1-6 credits, max 6. Prerequisite(s): Consent of associate dean. An in-depth application of theoretical models and philosophies related to area of specialization.

HS 5253* Family Economics. Issues related to the economics of families, household production, and human capital development; economics of 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.

HS 5303* Fundamentals of Family Financial Planning. 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.

HS 5333* Theories and Research in Family Financial Planning. Prerequisite(s): Admission to the Great Plains IDEA FFP program. Introduction of the science of family finances. Focus on theories of family economic behavior, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of economy and families. Web-based instruction.

HS 5353* Financial Counseling for Family Financial Planning. 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 training issues. Web-based instruction.

HS 5403* Estate Planning for Families. 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.

HS 5453* Retirement Planning, Employee Benefits and the Family. 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.

HS 5483* Military Family Financial Issues. An overview of topics relevant to the financial planning process, adapting topics to address the unique needs of 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.

HS 5533* Economics of Aging and Public Policy. Policy development in the contest of the economic status of the elderly populations. Retirement planning and the retirement decision; Social Security and public transfer programs for the elderly; intrafamily transfers to or from the elderly; private pensions; financing medical care for the elderly; prospects and issues for the future. Web-based instruction.

HS 5543* Environments and Aging. Special needs of older people and attributes of physical environments that support these needs including attention to the “meaning of and attachment to home.” Application of knowledge to design and management of housing, institutional settings, neighborhoods and communities. Environment-person fit; aging-in-place, assisted living and long-term care; and therapeutic environments. Web-based instruction.


HS 5653* Personal Income Tax for Family Financial Planning. 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 appropriate tax strategies. Web-based instruction.

HS 5703* Professional Practices in Family Financial Planning. 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 tax return findings. Web-based instruction.

HS 5803* Case Studies in Family Financial Planning. Prerequisite(s): 5303, 5403, 5453, 5553, 5603, 5653 or consent of adviser. Professional issues in financial planning, including ethical considerations, regulation and certification requirements, communication skills, and professional responsibility. Utilization of skills in relation to case studies and role plays. Development of professional case study cases, the development of a targeted investment policy, and other related financial planning assignments. Web-based instruction.

HS 6993* Graduate Seminar in Human Sciences. Prerequisite(s): Consent of instructor. Analysis of philosophy, critical issues, current developments and interrelationships among elements in human sciences.

Industrial Engineering and Management (IEM)

IEM 2903 Manufacturing and Service Systems and Tools I. Prerequisite(s): ENGR 1111, MATH 2144. Introduction to design, operation and improvement of systems that produce goods and services. Case studies featuring classical and contemporary issues in industrial engineering and management. Issues include system effectiveness and efficiency in meeting customer needs, demands and expectations. Introduction to computer-aided tools useful in documentation, analysis, and modeling within contemporary organizations.

IEM 3103 Introduction to Probabilistic Modeling. Prerequisite(s): MATH 2153. Introduction to concepts and models of randomness, which support industrial engineering and engineering management analyses and decision-making. Includes probability models, statistical models and distributions, Markov processes and Little’s Law.

IEM 3303 Manufacturing Processes. Lab 3. Prerequisite(s): ENGR 1322 and ENSC 3313. Manufacturing processes used to transform new materials including metals, wood, non-metals, rubber, plastics, and fabricated goods, into final products through chemical and nonchemical manufacturing processes. Introduction to CAD/CAM. Basic process selection, Metrology and measurement fundamentals.

IEM 3403 Collaborative Engineering Project Management. Prerequisite(s): 2903, 3703. Engineering management and group issues involved in project planning, implementation and topics addressed include project management methodologies and software; teamwork structures, processes, and collaborative technologies; process management, leadership and other team roles.

IEM 3503 Engineering Economic Analysis. Prerequisite(s): MATH 2153. Development and use of time value of money models for decision-making among independent, dependent, capital-constrained and unequal-life projects. Replacement, break-even and multiple decision analyses. Depreciation and depletion methods and their effect on corporate income tax rates, leading to after-tax cash flow analysis. Introduction to financial reports.

IEM 3513 Economic Decision Analysis. Prerequisite(s): MATH 2123. 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 period methods. Decision-making among independent, dependent, capital-constrained and unequal-life projects. Replacement, break-even and multiple decision analyses. Depreciation and depletion methods and their effect on corporate income tax rates, leading to after-tax cash flow analysis. Introduction to financial reports.


IEM 3703 Manufacturing and Service Systems and Tools II. Prerequisite(s): ENGR 1111, MATH 2144. Introduction to definition, design, operation, and improvement of systems that produce goods and services. Case studies featuring classical and contemporary issues in industrial engineering and management. Issues include system effectiveness and efficiency in meeting customer needs, demands and expectations. Introduction to computer-aided tools useful in documentation, analysis, and modeling within contemporary organizations.


IEM 4010 Industrial Engineering Projects. 1-3 credits, max 6. Prerequisite(s): Consent of school head. Special undergraduate projects and independent study in industrial engineering.

IEM 4013* Introduction to Operations Research. Prerequisite(s): 3103, MATH 3263. 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.

IEM 4020 Undergraduate Engineering Practicum. 1-3 credits, max 4. Prerequisite(s): Consent of IEM adviser, admission to the Professional School of Industrial Engineering and Management and satisfactory completion of at least 12 hours of IEM 3000 or 4000 level courses. 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.

IEM 4103* Introduction to Quality Control. Prerequisite(s): 3103. Performance excellence in a enterprise, including relationships between industrial engineering and quality control. Statistical quality control concepts to monitor, monitor, diagnose, and improve performance at the enterprise level, the operational level, and the project level. Quantitative and qualitative tools to solve problems and capture opportunities for improvement.

IEM 4113* Industrial Experimentation. Prerequisite(s): 3103. Analytical methods for the purpose of process improvement. Experimental design includes single, blocked and multiple factors. Introduction to fractional factorial designs, central composite designs, and Taguchi robust designs. Data collection, analysis, and interpretation, including graphical methods, confidence intervals, and hypothesis tests. Multiple linear regression analysis methods. Industrial applications.

IEM 4163 Service Systems and Processes. Prerequisite(s): 3103, 3503, 4613. 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.

IEM 4203* Facilities and Material Handling System Design. Prerequisite(s): 3303, 3813, 4013, 4713. 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.

IEM 4343 Introduction to Micro Devices Assembly. Micro devices assembly. Use of virtual reality in design of micro assembly cells, micro gripping techniques, interactive forces in micro assembly, design of fixtures to support rapid assembly of micro devices, review of state of the art. Information modeling and virtual reality technology in the context of micro assembly cell design. No credit for students with credit in IEM 4443.

IEM 4413* Industrial Organization Management. Prerequisite(s): 2903, 3703. Issues, concepts, theories and insights of engineering management and applications emphasizing effective performance.

IEM 4613* Production Planning and Control Systems. Prerequisite(s): 4013. 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.

IEM 4623* Introduction to Supply Chain Management. Prerequisite(s): IEM 3103, IEM 4013 and consent of instructor. 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. May not be used for graduate credit with IEM 5763.

IEM 4713* Introduction to Systems Simulation Modeling. Lab 3. Prerequisite(s): 4013. 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.

IEM 4723* Information Systems Design and Development. Prerequisite(s): 2903, 3703. Information systems development methodologies, modeling methods, and software tools for the design and development of information systems. Different phases of system design and implementation. Data modeling using entity-relationship diagrams and process modeling using data flow diagrams, IDEF0 and IDEF3. Introduction to enterprise resource planning systems and their use within different enterprise functional units.

IEM 4893* Fundamentals of Medical Smart Garment Engineering. Prerequisite(s): 90+ hours or Graduate standing. 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 BIOM 6933, DHM 4043 or IEM 5893.

IEM 4913 Senior Design Projects. Lab 6. Prerequisite(s): 3403, 3503, consent of instructor; IEM majors only. Student teams work on professional-level engineering projects selected from a wide range of participating organizations. Projects are required to be those normally expected by beginning professionals and require both oral and written reports. Normally taken during student’s last semester of undergraduate work.

IEM 4931 Industrial Engineering and Management Seminar. Prerequisite(s): Senior standing. Designed to orient seniors to their professional work environment. Topics may 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.

IEM 4953 Industrial Assessment and Improvement. Prerequisite(s): Senior standing and consent of instructor. 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.

IEM 4990 Selected Topics in Industrial Engineering and Management. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. 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.

IEM 5000* Master’s Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Approval of major adviser. Research and thesis for master’s students.

IEM 5003* Statistics and Research Methods. Prerequisite(s): STAT 4033 or IEM 3103. Statistical and research methods used in various areas of industrial engineering including problem definition, managing the research process statistically, and analysis tools, survey vs. experimental research techniques.

IEM 5010* Industrial Engineering Projects. 1-6 credits, max 6. Prerequisite(s): Consent of school head and approval of major adviser. Special graduate projects, independent study in industrial engineering.

IEM 5013* Introduction to Mathematical Programming. Prerequisite(s): 4013 or equivalent. Introduction to mathematical programming with an emphasis on linear programming, integer programming, minimum cost network flows and convex programming. Effective formulation techniques, basic mathematical and algorithmic concepts, and software solution of large-scale industrial engineering problems arising in manufacturing and service applications.

IEM 5020* Graduate Engineering Practicum. 1-3 credits, max 3. Prerequisite(s): Consent of IEM adviser and satisfactory completion of 12 hours of IEM 5000- or 6000-level courses. Professionally supervised experience in projects for which 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 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.

IEM 5023* Optimization Applications. Prerequisite(s): Graduate standing. A survey of various methods of unconstrained and constrained linear and nonlinear 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 & MAE 5703)

IEM 5030* Engineering Practice. 1-9 credits, max 12. Prerequisite(s): Approval of adviser. 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 adviser. 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.

IEM 5033* Linear Optimization. Prerequisite(s): 5013 or equivalent. Mathematical theory and algorithms of linear programming 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.

IEM 5043* Nonlinear Optimization. Prerequisite(s): 5033 or equivalent. Mathematical theory and algorithms of nonlinear programming. Convexity, local/global optima, optimality conditions and duality in nonlinear programming and their effect on model and algorithm development. Convex analysis, duality conditions and optimality criteria and algorithms for constrained optimization, Lagrangian duality, relaxation-linearization techniques and interior point algorithms for convex optimization.

IEM 5063* Network Flows & Combinatorial Optimization. Prerequisite(s): IEM 5023 or equivalent. Fundamental concepts from graph theory. Algorithms for convex optimization, fundamental algorithms for network flows and combinatorial optimization, and algorithms with an emphasis on applications in transportation and logistics planning. Covers basics of graph theory and complexity theory; algorithms for shortest paths, max flows and min cut, min cost flows, assignments and matchings, min spanning trees, traveling salesman problem, local search and metaheuristics including simulating annealing, genetic algorithm and tabu search.

IEM 5103* Breakthrough Quality. Prerequisite(s): 4103 and 4113 or equivalents. Structured, systematic approach and advanced statistical and mathematical tools to achieve breakthrough improvement across all areas of an enterprise. Rigorous application, integration, and betterment of strategies and tools for improving or redesigning products and processes such that performance gains are noticeably higher or quicker than those achieved through traditional incremental improvement approaches.

IEM 5113* Strategic Quality Leadership. Prerequisite(s): STAT 4013 or equivalent and graduate standing. 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.

IEM 5123* Service Quality. Prerequisite(s): STAT 4013 or equivalent. 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.

IEM 5133* Stochastic Processes. Prerequisite(s): MATH 2233, MATH 3013, STAT 5123. 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).

IEM 5143* Reliability and Maintainability. Prerequisite(s): STAT 4033 or equivalent. 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.

IEM 5153* Process Design and Integration. Prerequisite(s): STAT 4033 or equivalent. Introduction to system design, integration, control, and management of the operation and coordination between enterprises. Analytical and systems approaches to address physical and statistical characterization of inputs, transformations, and outputs.
issues, including process mapping, cause and effect analysis, and impact projection. Purpose, linkages, value, leverage, measurement, creativity and leadership.

IEM 5163* Service Systems and Processes. Prerequisite(s): 3103, 3503, 4613. 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.

IEM 5203* Facility Location, Warehousing and Freight Transportation. Prerequisite(s): 3503, 4013, and 4203. Analytical models for single and multi facility location problems. Algorithms for network location problems including the median, center and covering problems. A discussion of storage location policies such as dedicated, randomized and class-based and their relationship to the warehouse layout problem. Analysis and design of warehouse material handling systems. Introduction to warehouse management systems, freight movement modeling and transportation infrastructure planning.

IEM 5303* Computer Integrated Manufacturing Systems Design for Higher Volume Products. Prerequisite(s): 4613, 3303 or equivalents. Principles and procedures related to the design, implementation, documentation, and control of manufacturing systems focusing on higher volume, lower product variety production systems. Introduction to product life cycle concepts and the application of computer-aided design and computer-aided manufacturing tools to systems characterized by dedicated production equipment and the need for absolute flexibility, minimized setup costs. Product and production system design, analysis, and operation for fixed automation. Operational philosophies and applicable systems concepts, especially those relating to line design, analysis, efficiency, and unit production cost reduction.

IEM 5343* Introduction to Micro Devices Assembly. Prerequisite(s): Graduate standing or consent of instructor. Micro devices assembly. Use of virtual reality in design of micro assembly cells, micro gripping techniques, interactive forces in micro assembly, design of factories to support rapid assembly of micro devices, review of state of the art. Information modeling and virtual reality technology in the context of micro assembly cell design. No credit for students with credit in 4343.

IEM 5350* Industrial Engineering Problems. 1-6 credits, max 6. Prerequisite(s): Approval of major adviser. A detailed investigation into one area of industrial engineering with a required written report.

IEM 5413* Managing the Engineering and Technical Function. Prerequisite(s): 4613. and 4123 or equivalent industrial experience. Advanced study of the engineering and technical organization. Engineering and technical functions, management process, roles, and activities. Individual study of current technical management issues of student interest.

IEM 5503* Financial and Advanced Capital Investment Analysis. Prerequisite(s): 3503, 4013, or IEM 5103 or equivalent. 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, representative cash flows, selecting investments, avoiding common pitfalls, evaluating timing consideration, depreciation and corporate taxation, replacement analysis, and incorporating risk and uncertainty.

IEM 5603* Project Management. Prerequisite(s): 4413 or equivalent. A systems approach to planning, organizing, scheduling and controlling projects. The behavioral and cognitive aspects of project management; importance of working with personnel as well as technology. Project management software utilized.


IEM 5633* Advanced Production Control. Prerequisite(s): 4013, 4613. Advanced concepts and quantitative techniques used in production planning and control, including demand forecasting using regression, time series analysis, and Box-Jenkins models, mathematical programming approaches, to aggregate planning and disaggregation, static and dynamic scheduling of machines and cells, and independent demand inventory management. Deterministic and stochastic models and their relationship to Just-In-Time and Zero Inventory practices.

IEM 5703* Discrete System Simulation. 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.

IEM 5723* Data, Process and Object Modeling. Prerequisite(s): Graduate standing or consent of instructor. Logical and physical models in the analysis, design and improvement of enterprise systems. Structured and object-oriented analysis and design techniques. Data modeling using entity-relationship diagrams and IDEF1x. Data normalization techniques. Process modeling using data flow diagrams, IDEFO, IDEF3, and Petri nets. Object modeling using the unified modeling language (UML).

IEM 5743* Information Systems and Technology. Prerequisite(s): Graduate standing or consent of instructor. 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.

IEM 5763* Supply Chain Strategy. Prerequisite(s): 4613 and 5003 or equivalents. Supply chain strategy including the philosophical base of business practice and the analytical base of modeling. Supply chain strategy, including design and implementation, demand planning and forecasting, supply chain performance measurement, supply chain integration, characteristics of different supply chains and supply chain performance modeling.

IEM 5773* Supply Chain Modeling. Prerequisite(s): 5763 and 5013 or 5473 and 5703 or equivalents. Supply chain analysis using different approaches to the supply chain modeling, including the Supply Chain Council’s SCOR (Supply Chain Operations Reference) model, optimization and simulation. Specialized software is used to develop each modeling approach.


IEM 5813* Performance Measurement Systems. Prerequisite(s): 3813, 4413 or equivalents. 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. Manager’s role in a manufacturing system, management decision making regarding performance measurements, and 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 applications.

IEM 5893* Fundamentals of Medical Smart Garment Engineering. Prerequisite(s): 90+ hours or Graduate standing. 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 BIOM 6933, DHM 4043 or IEM 4893.

IEM 5953* Industrial Assessment and Improvement. Prerequisite(s): Senior standing and consent of instructor. Plant assessment and improvement-based concepts, strategies, and tools for manufacturing operations. Small to medium-size manufacturing; the role of simulation and evaluation in the plant assessment process; strategy development, tactical and operational analysis; analysis of data to support decision making; tools and techniques used in plant improvement projects; measurement of project results.

IEM 5990* Special Topics in Industrial Engineering and Management. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. 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.

IEM 6000* Doctoral Research and Dissertation. 1-15 credits, max 30. Prerequisite(s): Approval of major adviser and advisory committee. Independent research for PhD dissertation requirement under direction of a member of the Graduate Faculty.

IEM 6023* Integer Programming. Prerequisite(s): 5033 or equivalent. Theory, algorithms and applications of integer programming. Formulation of binary, pure, and mixed integer linear problem, branch and bound, implicit enumeration, branch and bound, cutting plane methods, column generation, Lagrangian relaxation, Benders decomposition; theory of polyhedra, convex hulls and facets, theory of valid inequations, subadditivity and master polytope, lifting and projection.

IEM 6110* Special Problems in Industrial Engineering. 1-6 credits, max 12. Prerequisite(s): Consent of school head and approval of major adviser. Special problems in industrial engineering and management under supervision of a member of the Graduate Faculty.


IEM 6133* Dynamic Programming and Stochastic Control. Prerequisite(s): 5013, 5133. Models and solution techniques for problems of sequential decision making under uncertainty. Deterministic discrete-time optimal control, deterministic continuous-time optimal control, stochastic optimal control with perfect state information, stochastic optimal control with imperfect state information, suboptimal control, and infinite horizon problems.

IEM 6990* Advanced Topics in Industrial Engineering and Management. 1-288
6 credits, max 6. Prerequisite(s): Consent of instructor. Study of advanced 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.

**Interdisciplinary Toxicology (ITOX)**

ITOX 5103* Biochemical Toxicology. Prerequisite(s): Graduate standing; consent of instructor. In-depth overview of biochemical and molecular mechanisms of interaction 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/organismal integrity and function. (Same course as VBS 5013*)

ITOX 5282* Methods of Forensic Science. 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*)

ITOX 5303* Organismal Ecotoxicology. Prerequisite(s): Consent of instructor. 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 in organisms. (Same course as ZOOL 4303 and 5303*)

ITOX 5343* Population & Community Toxicology. Prerequisite(s): course in ecology strongly recommended. 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*)

ITOX 5423* Techniques in Environmental Toxicology. Prerequisite(s): organic chemistry or consent of instructor. Practical understanding of modern techniques used to quantify exposure and effects of environmental toxicants. Laboratory topics include gas chromatography, HPLC, atomic absorption spectrophotometry, immunoassays, and toxicity testing. (Same course as ZOOL 5423*)

ITOX 5523* Forensic Toxicology. 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*)

**International Agriculture (AGIN)**

AGIN 5000* Master’s Thesis/Report in International Agriculture. 1-6 credits, max 6. Prerequisite(s): for students working on a masters degree in international agriculture. Independent research and thesis under the direction and supervision of a major professor.

AGIN 5312* Applied Issues in International Agriculture and Natural Resources. Prerequisite(s): Graduate standing or consent of instructor. 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.

AGIN 5333* Guided Readings in International Agriculture and Natural Resources. Prerequisite(s): Graduate standing or consent of instructor. 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.

AGIN 5353* Advanced Case Studies in Agricultural Marketing and International Development. Prerequisite(s): Consent of instructor. 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.

AGIN 5800* International Agriculture Internship Experience. 1-6 credits, max 12. Prerequisite(s): Graduate standing or consent of instructor. Students conducting an international internship experience, under the direction and supervision of a faculty member.

AGIN 5990* Advanced Studies in International Agriculture and Natural Resources. 1-12 credits, max 15. Prerequisite(s): Consent of instructor. Individual or small group study and/or research in international agriculture and natural resources.

**International Studies (INTL)**

INTL 4020 Independent Study. 1-3 credits, max 6. Prerequisite(s): Instructor permission. Directed study in student’s area of interest.

INTL 4110 Internship in International Studies. 1-3 credits, max 6. Prerequisite(s): Instructor permission. Internship in International Studies.

INTL 4200 Study Abroad. 1-6 credits, max 6. Prerequisite(s): Consent of instructor and consent of SIS Director of Academic Programs. Academic work abroad on either a group or individual basis.

INTL 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Graduate standing and consent of adviser. For students studying for a master’s degree in international studies under the thesis option.

INTL 5013* Contemporary Issues in International Studies. Prerequisite(s): Enrollment in MS program in International Studies or enrollment in an OSU graduate program and consent of instructor. Examination of major transnational issues and associated problems of international cooperation, including ethnic conflicts, environmental degradation, global standards for human rights, and economic globalization.

INTL 5020* Independent Study. 1-3 credits, max 6. Prerequisite(s): Consent of supervising faculty member. Readings and directed study in student’s focus area.

INTL 5043* Politics of the Global Economy. Prerequisite(s): Graduate standing. 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 as POLS 4043)

INTL 5100* Research in International Studies. 3-6 credits, max 6. Prerequisite(s): Graduate standing. Individually supervised research on topics within the student’s focus area for the International Studies Program.

INTL 5110* International Studies in Internship. 1-6 credits. Prerequisite(s): Graduate standing and consent of Director. Individually supervised internships in international career areas.

INTL 5200* Study Abroad. 1-6 credits. Prerequisite(s): Graduate standing, consent of instructor, and consent of SIS Director of Academic Programs. Academic work abroad on either a group or individual basis.

INTL 5223* Culture, History and World Systems. Prerequisite(s): Graduate standing. 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*)

INTL 5233* Global Competitive Environment. 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)

**Japanese (JAPN)**


JAPN 1225 Elementary Japanese II. Prerequisite(s): 1115 or equivalent. Reading, the writing system, culture, grammar, conversation. Not for native speakers per University Academic Regulation 4.9.


JAPN 3013 Advanced Japanese Conversation. Prerequisite(s): 2225 or equivalent proficiency. Designed to increase facility and naturalness of delivery in dialogue. Development of general oral and aural proficiency.
JAPN 3133 Readings in Japanese. Prerequisite(s): 2223 or equivalent proficiency. Development of the student's competence in reading a wide variety of materials by contemporary Japanese writers.

Landscape Architecture (LA)

LA 1013 Introduction to Landscape Architecture and Landscape Management. An overview of the fields of landscape architecture and landscape management with an emphasis on the application of artistic and scientific principles of design, planning, and management of natural and built environments.

LA 2213 Visual Communication I for Landscape Architecture. Lab 3. The practice and application of drafting, freehand sketching, design vocabulary, and design concepts to explore, communicate, and represent built and imagined landscapes.

LA 2223 Visual Communication II for Landscape Architecture. Lab 3. Prerequisite(s): 2213. Visual journaling and communication. The practice and application of delineation techniques and computer based multimedia for conveying information and conceptual ideas about landscape through the development of understandable graphic presentations.

LA 2323 Computer-Aided Design. Lab 2. Prerequisite(s): 1013, 2213. Introduction and design computer operating systems. Principles of electronic drafting and visual communication techniques related to the landscape for two-dimensional and three-dimensional systems.

LA 2513 (D) Native American Symbolism in Landscape Design. Lab 3. 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.

LA 2523 Garden Design in Harmony with Local Ecology. Lab 3. 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.

LA 3010 Internship in Landscape Architecture. 1-7 credits, max 10. Prerequisite(s): 45 credit hours and consent of internship chairperson. 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.

LA 3112 Landscape Architecture Regional Built Works. Prerequisite(s): 1013. Analysis of various aspects of the landscape architecture profession and designed works with guest speakers. One-day field trips to cities in the region to view landscape architecture built works and visit professional offices. Required of third year students.

LA 3315 Studio I: Principles and Theory of Design. Lab 9. Prerequisite(s): 1013, 2223 and 2323. 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.

LA 3325 Studio 2: Site Design. Lab 9. Prerequisite(s): 3315. 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.

LA 3673 (H) History and Theory of Landscape Architecture. History and historic styles and approaches to landscape architectural design. Past and present landscape design theory.


LA 3884 Landscape Architectural Construction I. Lab 4. Prerequisite(s): 2323, MCOG 2313. 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. Semester project covering grading, drainage, cut and fill, stormwater runoff, specifications, and cost estimating. Utilizing Auto CAD and other computer applications.

LA 3894 Landscape Architectural Construction II. Lab 4. Prerequisite(s): 2323, 3884. Advanced grading and drainage, horizontal and vertical roadway alignment, site layout and dimensioning, construction documents, site utilities, engineering properties of soils, introduction to paving and drainage construction materials, introduction to retaining wall design and site lighting. Semester project covering construction documents, site layout and dimensioning, grading and drainage, cut and fill, site utilities, retaining walls, site lighting and cost estimating utilizing Auto CAD and other computer applications.

LA 4034* Landscape Planting Design. Lab 4. Prerequisite(s): 3324. HORT 2313 and 2413. Plants in the landscape as aesthetic and functional elements. Environmental enhancement by and for plants. Preparation of planting sketches, plans and specifications.

LA 4053 (I) International Experience in Landscape Architecture - Japan. Prerequisite(s): Consent of appropriate faculty member. Participation in a formal or informal educational experience related with landscape architecture in Japan.

LA 4063 (I) International Experience in Landscape Architecture - Peru. Prerequisite(s): Consent of appropriate faculty member. Participation in a formal or informal educational experience related with landscape architecture in Peru.

LA 4112 Landscape Architecture National Built Works. Prerequisite(s): 4514 or consent of instructor. Examination of the built environment, sustainable strategies for land use and rehabilitation, and professional practice while exploring career opportunities for students. Exposure students to built works, including sustainably-developed sites, and landscape architectural professional offices with targeted practices and market niches. Includes 4-6 day out-of-state field trip component.

LA 4415* Studio 3: Recreation and Open Space Design Lab 9. Prerequisite(s): 3325, 3884. 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.

LA 4423* Planning and Design for Sustainable Landscapes. Lab 2. Prerequisite(s): 3324. 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.

LA 4425* Studio 4: Ecological Planning and Community Design Lab 9. Prerequisite(s): 4415, 4894. Environmental assessment/analysis as related to ecological planning and community design. Applied project will focus on new urbanism and community design solutions while addressing environmental and sustainability issues.

LA 4433* Land Use and Community Planning. Prerequisite(s): 3325. The investigation and analysis of natural and man-made landscape resources and their application to land use and community planning within the framework of a municipality's comprehensive plan and regulations.

LA 4453* Principles of Landscape Analysis for Site Design. Prerequisite(s): 2323 and 3325. 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.

LA 4515* Studio 5: Urban Design Lab 9. Prerequisite(s): 4425, 4894. 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.

LA 4525* Studio 6: Collaborative Design Lab 9. Prerequisite(s): 4515. Exploration of the dynamics of design teams, professional office environments, and community involvement. This capstone course will apply collaborative comprehensive solutions to community based projects while addressing environmental, social, and economic dynamics.

LA 4573* Recreation Planning Lab 2. Prerequisite(s): 3324. Theory and methods for small and large scale area planning with emphasis on natural and cultural resources.

LA 4583* Landscape Environmental Planning. Prerequisite(s): 3325. Development of landscape architectural projects in the context of the National Environmental Policy Act (NEPA) and state and local government environmental regulations affecting planned projects encountered by the landscape architect.

LA 4894* Landscape Architectural Construction III. Lab 4. Prerequisite(s): 2323, 3324, 3884. A capstone course utilizing design techniques, computer skills, construction materials, methods and applications for the landscape industry. Detailed computerized construction drawings of pavement, fences, walls, wood structures, irrigation, and water features will be prepared. Comprehensive construction documents are required as a semester project utilizing computer drafting, design and calculation applications.

LA 4990* Landscape Architecture Special Problems. 1-6 credits, max 12. Prerequisite(s): Consent of appropriate faculty member. Landscape architectural related problems.

LA 5110* Advanced Special Problems. 1-2 credits, max 20. Prerequisite(s): Consent of appropriate faculty member. Specific landscape architectural problems.

Latin (LATN)

LATN 1113 Elementary Latin I. The rudiments of beginning Latin: grammar, vocabulary and elementary readings.

LATN 1223 Elementary Latin II. Prerequisite(s): 1113 or equivalent proficiency. Continuation of 1113. Grammar, vocabulary and readings.

LATN 2113 Elementary Latin III. Prerequisite(s): 1223 or equivalent. A continuation of 1223. Grammar and readings of Latin authors.

LATN 2213 Intermediate Readings. Prerequisite(s): 2113 or equivalent proficiency. Readings from Virgil's Aeneid.

LATN 3330 Advanced Readings in Latin. 1-6 credits, max 9. Prerequisite(s): 2213. Prose authors, poetry, and medieval Latin.

2014-2015 University Catalog
LATN 4113 (H) Latin Literature in Translation. 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.

Legal Studies in Business (LSB)

LSB 1113 Law in Society. 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.

LSB 3010 Special Topics in Legal Studies in Business. 1-3 credits, max 6. Prerequisite(s): 3213, prior consent of instructor. Analysis of a contemporary topic in business law. Changing social issues and trends in legal studies in business.

LSB 3213 Legal and Regulatory Environment of Business. Prerequisite(s): Junior standing. 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.

LSB 4323 Law of Commercial Transactions and Debtor-Creditor Relations. Prerequisite(s): 3213. Concentration study of law relating to certain commercial transactions and debtor/creditor relationships. Includes law of sales, negotiable instruments, secured transactions, suretyship and bankruptcy.

LSB 4403 Law and Entrepreneurship. Prerequisite(s): 3213 or permission of instructor. 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.

LSB 4413* Law of Business Organizations. Prerequisite(s): 3213. 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.

LSB 4423* Employment Law. Prerequisite(s): 3213 or equivalent. 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 workplace and state workers compensation laws.

LSB 4523* Law of Real Property. Prerequisite(s): 3213 or equivalent. 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.

LSB 4633 (I) Legal Aspects of International Business Transactions. Prerequisite(s): 3213 or equivalent. 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 international contracts, problems of technology transfer on the international market, anti-trust aspects of international business, and jurisdictional problems in resolving disputes.

LSB 5010* Research and Independent Studies. 1-3 credits, max 10. A workshop arrangement or supervised independent study.

LSB 5163* Legal Environment of Business. Prerequisite(s): Admission to a SSB graduate program or consent of MBA Director. 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.

LSB 5203* Foundations of Issue and Conflict Management. 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.

LSB 5213* Mediation and Facilitation: Theories and Practice. Prerequisite(s): 5203. 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 resolution and resolution conflicts. Ethical, practical and legal constraints are also addressed.

LSB 5233* Introduction to Arbitration and Litigation. Prerequisite(s): 5203. 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.

LSB 5290* Seminar in Negotiation and Alternative Dispute Resolution. 1-3 credits. Prerequisite(s): Consent of instructor. Individual investigations in the areas of issue and conflict management under the direct supervision of a faculty member.

Leisure (LEIS)

LEIS 1232 Beginning Golf. Lab 2. Theory and practice of basic skills, rules, terminology and etiquette.

LEIS 1242 Beginning Tennis and Racquetball. Lab 2. 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 1252.

LEIS 1252 Beginning Tennis. Lab 2. Theory and practice of basic skills, rules, terminology and game strategy for singles and doubles play. No credit for students with credit in 1242.


LEIS 1342 Physical Fitness. Lab 2. Theory and practice of aerobic and weight training activities with learning experiences designed to promote physical fitness.

LEIS 1352 Weight Training. Lab 2. 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.

LEIS 1362 Self Defense. Lab 2. Theory and practice of self defense; scientific principles of gravity and body control over opposing forces, and principles of contact sports.

LEIS 2112 Rock Climbing. Lab 2. Theory and practice in the basics of technical rock climbing, bouldering and spelunking.

LEIS 2122 Backpacking and Hiking. Lab 2. Theory and practice of outdoor skills and leadership techniques for executing and evaluating a wilderness activity.

LEIS 2322 Recreational Dance. Lab 2. Theory and practice of traditional social dances and a variety of “free style” dance forms.

LEIS 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of major professor. Research in leisure studies for master’s degree.

LEIS 5010* Directed Study in Leisure Services. 1-3 credits, max 6. Directed study in leisure and from the profession on topics not included in other courses.

LEIS 5020* Workshop in Leisure Studies. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Advanced instruction on specialized topic area in leisure studies.

LEIS 5023* Legal Aspects of Health, Physical Education and Leisure Services. The application and interpretation of the law as it applies to teachers, coaches and administrators of health, physical education and leisure services programs.

LEIS 5030* Field Problems in Leisure Studies. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Applied research within the practice of leisure studies.

LEIS 5073* Therapeutic Recreation and Geriatrics. Prerequisite(s): 2433 or consent of instructor. Role of Therapeutic Recreation (TR) specialists working with the geriatric population. Topics include terminology, etiology, prognosis, assessment, and program development in TR.

LEIS 5403* Interpretation in Leisure Services. Organization and administration of visitor centers and interpretive naturalist programs, philosophic approaches, and methods for interpreting the natural and cultural history of public parks and recreation areas.

LEIS 5413* Organization and Administration of Leisure Services. Systematic approach to problem solving and decision-making for structure, personnel management, finance and program development for leisure service delivery systems.

LEIS 5423* Supervision and Leadership in Leisure Services. Prerequisite(s): Graduate standing. Administrative supervision and leadership in leisure services delivery systems. An examination of theories and practice as they relate to human, programmatic, and facility resources.

LEIS 5433* Current Issues in Leisure Services. Prerequisite(s): Admission to the leisure studies program. Current issues related to the leisure services profession. Investigation, discussion and analysis of contemporary issues.

LEIS 5443* Social Foundations of Leisure Services. Prerequisite(s): Graduate standing. Social, psychological, philosophical and historical foundations of leisure.

LEIS 5453* Social Psychology of Leisure. Inquiry into the understanding of human behaviors, thoughts and attitudes related to leisure, and the understanding of complex issues related to the social psychology of leisure.

LEIS 5463* Issues in Therapeutic Recreation. Prerequisite(s): LEIS 2433 or professional experience in therapeutic recreation. Current issues in therapeutic recreation with emphasis on accreditation, certification, licensure, quality assurance and ethics.

LEIS 5473* Leisure and Aging. Prerequisite(s): 2433 or consent of instructor.
Overview of the leisure needs and services for older adults, with emphasis upon the delivery system and leisure interventions.

LEIS 5483* Therapeutic Recreation for Persons with Physical Disabilities. Prerequisite(s): 3483 or consent of instructor. Role of therapeutic recreation in the treatment and rehabilitation of individuals with physical disabilities, with emphasis on terminology, prognosis, etiology of specific disabilities, program development and assessment.

LEIS 5493* Therapeutic Recreation in Mental Health and Mental Retardation. Prerequisite(s): 3483 or consent of instructor. Role of therapeutic recreation in mental health with emphasis upon client prognosis and methodologies of treatment programs.

LEIS 6000* Doctoral Dissertation. 1-25 credits, max 25. Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation.

LEIS 6010* Independent Study in Leisure Studies. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Supervised readings, research or study of trends and issues related to leisure studies.

LEIS 6013* Professional Issues in Leisure Studies. Prerequisite(s): Admission to the Graduate College. Introduction to higher education issues relevant to professional preparation in leisure studies curricula, including roles of the educator, curriculum development, implementation and management, instructional strategies and accreditation.

LEIS 6020* Leisure Research Colloquium. 1-3 credits, max 6. Prerequisite(s): Doctoral standing. Exploration and presentation of selected topics and research in leisure studies.

LEIS 6023 Special Topics in Leisure Studies. Prerequisite(s): Admission to the Graduate College. Special topics related to recreation, parks and leisure studies. Investigation, discussion and analysis of contemporary topics.

LEIS 6043* Ethical Issues in Health, Leisure, and Human Performance. Prerequisite(s): Admission to the Graduate College. A survey of ethical issues with specific emphasis on health, leisure, and human performance in higher education.


LEIS 6763* Management in Health, Leisure, and Human Performance Settings. Prerequisite(s): Admission to the Graduate College. Essential elements of organizational structures, management issues, functions and styles in public, non-profit and private settings in health, leisure and human performance.

Library Science (LBSC)

LBSC 1011 Library and Internet Information Competencies. 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.

LBSC 5013* Library Media Center in the Schools. Effective utilization of the centralized school media center for the teaching-learning process.

LBSC 5113* Selection of Print and Non-Print Materials. Selection, evaluation and use of print and non-print materials including reference materials.

LBSC 5413* Organization of Information. 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.

LBSC 5613* Library Networks and Databases. 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.

LBSC 5823* Administration of School Library Media and Technology Programs. Vision of, planning, organizing, policy making, staffing, budgeting, decision-making and evaluating a standards-based school library media or school technology program.

Management (MGMT)

MGMT 3011 Business, Government and Society. Students will be exposed to topics in business and society including ethics and corporate responsibility, social environment and stakeholders; natural environment and externalities; and the regulatory environment.

MGMT 3013 Fundamentals of Management. Survey of management principles and techniques. Examines a variety of issues at individual, team and organizational levels and challenges faced by today’s managers.

MGMT 3023 Management of Sustainable Enterprises. 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. Students may not take both MGMT 3023 and MGMT 5023* for credit.

MGMT 3123 Managing Behavior and Organizations. Prerequisite(s): 3013. 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.

MGMT 3133 Developing Leadership Skills. Prerequisite(s): 3013. The study of personal, interpersonal and group factors relating to leadership performance. An integration of the theory and practice of leadership.

MGMT 3313 Human Resource Management. Prerequisite(s): 3013. Policies and practices used in personnel management. Focuses upon the functions of a human resource management department.

MGMT 3943 Sports Management. Prerequisite(s): 3013. Basic management skills required 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.

MGMT 4011 Crucial Interactions. 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 5011.

MGMT 4013 Current Topics in Management and Leadership. Prerequisite(s): 3013. Examination of selected topics representing the most current management and leadership theories and practices.

MGMT 4021 Managing Professional Relationships. The study of professional 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 5021.

MGMT 4031 Leading Organizational Change. An introduction to ways of bringing 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 5031.

MGMT 4041 Performance Management. 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 5041.

MGMT 4051 Creating Ethical Work Places. 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 5051.

MGMT 4061 Managing Confrontations. 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 5061.

MGMT 4063 Management of Corporate Philanthropy. 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.

MGMT 4073 Management and Ethical Leadership. 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.

MGMT 4083* Corporate and Social Responsibility. Prerequisite(s): 3013. Management of situations to minimize adverse consequences and serve an organization's best interests.

MGMT 4093 Management of Non-Profit Organizations. Students will be introduced to the role of non-profits in the economy including management systems, strategy, and the interface between non-profits, other businesses and various stakeholders. Students may not take both MGMT 4093 and MGMT 5093* for credit.

MGMT 4123* Labor Management Relations. Prerequisite(s): 3013. Labor relations and collective bargaining. Negotiation and administration of labor agreements and employee relations in non-union organizations. Modes of impasse resolution.

MGMT 4133* Compensation Administration. Prerequisite(s): 3313, STAT 2023. Introductory course. Fundamentals of compensation such as the legislative environment, compensation theories, job analysis, job evaluation, wage structures and indirect compensation programs.

MGMT 4143 Preventive Stress Management. Prerequisite(s): 3013. Management to promote eustress (positive stress) and prevent or resolve distress (negative stress) in organizations. Psychophysiology of the stress response and the individual and organizational costs of distress. The principles and methods of preventive stress management.

MGMT 4153 Managing Training and Development. Prerequisite(s): 3313. The role of training and development in organizational sustainability and
The American Ethics and decision-making course, requiring 1-6 credits with a maximum of 9 credits, has prerequisite(s): 3013.

MGMT 4313 Organization for Action. Prerequisite(s): 3013. 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.

MGMT 4413 Change Management. Prerequisite(s): 3013. 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.

MGMT 4513 Strategic Management. Prerequisite(s): Senior standing or business core classes. 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.

MGMT 4533 Leadership Dynamics. Prerequisite(s): MGMT 3013. 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.

MGMT 4573 Managerial Decision Making. Prerequisite(s): 3013. 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.

MGMT 4613 (I) International Management. Prerequisite(s): 3013 or 3123. 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.

MGMT 4623 Small Business Management. Prerequisite(s): 3013 or 3123. Starting and managing a small business.

MGMT 4650 Leadership Issues. 1-6 credits, max 9. Prerequisite(s): 3013. Examination of leadership issues. Specific topics vary from semester to semester.

MGMT 4693 International Human Resource Management. Prerequisite(s): 3013 required, 3133 preferred and LSB 4423 recommended. 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, compensation, performance appraisal and labor relations. Human resource policies and practices of China, Japan, Mexico, Canada and other countries.


MGMT 4743 Advanced Sports Management. Prerequisite(s): 3013. 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.

MGMT 4750 International Leadership Experience. 3 credits, max 6. 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.

MGMT 4813 Staffing Organizations. Prerequisite(s): 3313. Theories and methods of recruiting and selecting employees. Job analysis, human resource planning, recruiting, employment laws, and staffing. Staffing methods such as interviews, references, application blanks, cognitive ability and personality tests and others. Development and critique of a selection plan and conduct of a behavioral interview.

MGMT 4843 Strategic Sport Management. Prerequisite(s): 3943. An in-depth analysis and review of revenue generation in the sport industry. Topics will include past and present examples from sports, both in the United States and internationally. Revenue generation strategies will be discussed in terms of management planning and decision making.

MGMT 4850 Applied Leadership Studies. 1-6 credits, max 6. Prerequisite(s): 3013. Structured internship of field project with supporting academic study.

MGMT 4883 (I) Multiple Perspectives in Global Management. Prerequisite(s): 3013. View of how multinational corporations and cross-border business transactions have an impact on countries, cultures, employers, and ecologic systems.

MGMT 4943 (I) International Sports Management. 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.

MGMT 5011* Crucial Interactions. 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 4011.

MGMT 5021* Managing Professional Relationships. 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 4021.

MGMT 5023* Management of Sustainable Enterprises. 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. Students may not take both MGMT 5023 and MGMT 5023* for credit.

MGMT 5031* Leading Organizational Change. 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 4031.

MGMT 5041* Performance Management. 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 4041.

MGMT 5051 Creating Ethical Work Places. 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 4051.

MGMT 5073* Management and Ethical Leadership. 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.

MGMT 5083* Corporate and Social Responsibility. 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.

MGMT 5093 Management of Non-Profit Organizations. Students will be introduced to the role of non-profits in the economy including management systems, strategy, and the interface between non-profits, other businesses and various stakeholders. Students may not take both MGMT 4093 and MGMT 5093* for credit.

MGMT 5113* Management and Organization Theory. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Contemporary theories of organization. Structure and dynamics of organizational goals and environments.

MGMT 5123 Contemporary Management Topics. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Examination of selected topics representing the most current management theories and practices.

MGMT 5153 Managing Training and Development. Prerequisite(s): 5113. 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.

MGMT 5163 Fundraising for Non-Profits. Students will be introduced to the theory and practice of raising external funding for social causes. Course may include exposure external speakers and non-profit executives.

MGMT 5212* Seminar in Organizational Behavior. Prerequisite(s): Admission to MBA program or consent of MBA director. 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.

MGMT 5223* Seminar in Human Resource Management. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. 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.

MGMT 5303* Corporate and Business Strategy. Prerequisite(s): FIN 5053
or concurrent enrollment. 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.

MGMT 5313* Project Management. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. The processes and techniques of management of projects in today's business world. Focuses on the processes of idea generation, needs analysis, implementation, evaluation, and learning. The techniques of team building and conflict resolution in project management.

MGMT 5323* Teams in Organizations. Prerequisite(s): 5113, admission to MBA program or consent of MBA director. The different ways in which organizations use teams. Many aspects of team development and the skills needed to effectively work in a team environment.

MGMT 5443* Building the Effective Organization. Prerequisite(s): 5113, 5513 (concurrent enrollment). The steps involved in building a small to mid-sized business into a well-run organization.

MGMT 5453* Technology Commercialization. Prerequisite(s): Admission to MBA program or consent of MBA director. The steps involved in evaluating and commercializing new technologies. The necessary steps in moving from prototype to product.

MGMT 5500* Special Projects in Management. 1-6 credits, max 9. Structured internship, academic project, or field project on a management topic under the direction of a faculty member.

MGMT 5533* Leadership Challenges. Prerequisite(s): 5113, admission to MBA program or consent of MBA director. Contemporary leadership practices. Leadership as a behavior, not as a position. The challenges of leadership, regardless of position.

MGMT 5553* Management of Technology and Innovation. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. 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.

MGMT 5563* Crisis in Organizations. Prerequisite(s): 5113, admission to MBA program or consent of MBA director. Management and leadership in the face of crisis, from the smallest mom and pop store to the largest multinational corporation.

MGMT 5613* Business Opportunity Identification and Analysis. Prerequisite(s): Admission to MBA program or consent of MBA director. The techniques required for locating business opportunities, assessing their feasibility, and evaluating their potential returns.

MGMT 5643* Sport Management. 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.

MGMT 5673* Advanced Sport Management. Builds on the material covered in 5643. More in-depth coverage is given to selected topics related to managing a sports entity.

MGMT 5713* Negotiation and Third-Party Dispute Resolution. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. 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.

MGMT 5743* International Negotiations. Prerequisite(s): Admission to MBA program or consent of MBA director. Improvement of negotiation skills and learn how cultural and national issues affect negotiations.

MGMT 5750* International Leadership Experience. Prerequisite(s): 3 credits, max 6. 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.

MGMT 5800* Special Topics in Management. 1-6 credits, max 9. Exploration of emerging management topics. Specific topics will vary from semester to semester.

MGMT 5843* Advanced Strategic Sports Management. 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 planning and politics, franchise development, legal cases, biographical stories, and the role of sports and tourism.

MGMT 5943* Advanced International Sports Management. 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.

MGMT 6313* Advanced Organizational Behavior. Prerequisite(s): Doctoral student standing and consent of instructor. 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.

MGMT 6323* Advanced Strategic Management. Prerequisite(s): Doctoral student standing and consent of instructor. Research concerning the content of organizational strategy and the process through which it is formulated and implemented.

MGMT 6333* Meso Organization Studies. Prerequisite(s): Doctoral student standing and consent of instructor. 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.

MGMT 6433* Contemporary Research in Management I. Prerequisite(s): Doctoral student standing and consent of instructor. Introduction to the research process in management and building a career as a management scholar.

MGMT 6533* Advanced Methods in Management Research. Prerequisite(s): Doctoral student standing and consent of instructor. 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)

MGMT 6563* Advanced Organizational Theory. Advanced organization theory in the field of management research. Analysis of key theoretical contributions within the field of management and related disciplines.

MGMT 6643* Contemporary Research in Management II. Prerequisite(s): Doctoral student standing and consent of instructor. Specialized contemporary topics in management for doctoral students.

MGMT 6453* Advanced Measurement in Management Research. Scale transformations, test construction, scale development, item analysis, reliability testing, validity, EFA/CFI, and regression and endogeneity.

MGMT 6553* Structural Equation Modeling Applications in Business. Prerequisite(s): Doctoral student standing and consent of instructor. Conceptual and analytical underpinnings of structural equation modeling and application to organizational and business research including measurement development and model testing. Recent advances in this technique. Hands-on experience with structural equation modeling software.

Management Science and Information Systems (MSIS)

MSIS 2103 Business Computer Concepts and Applications. Lab 2, 2. Concepts for the design, operation, and use of computer information systems in organizations, including fundamentals of key information technologies, information assurance, and the use of personal computing applications to support problem-solving. Lab-based computer training in fundamental productivity software and Internet tools.

MSIS 2203 Computer Programming for Business. Prerequisite(s): 2103 or equivalent. Computer programming for organizational management, the fundamentals of the Internet, and the dynamics of understanding and using the elements of information assurance and security with an emphasis on the management impact to corporations and businesses engaged in the information services and e-commerce. Students should come away from the course with the ability to advise management on the risks and mitigation for all types of threats to information and privacy.

MSIS 3023 (D) Technology, Diversity and Entrepreneurship. Prerequisite(s): 2103 or equivalent. Computer programming for organizations, the importance of integrating the Internet into business information systems. Fundamental principles and constructs of programming and applied programming in the business environment.

MSIS 3103 End User Database Systems Design and Management. Prerequisite(s): 2103 and Non-MIS (or CS) majors only. Use of computer technology and software to represent, manipulate and manage data. 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 major.

MSIS 3123 Information Assurance Management. A broad investigation of the elements of information assurance and security with an emphasis on the management impact to corporations and businesses engaged in the information services and e-commerce. Students should come away from the course with the ability to advise management on the risks and mitigation for all types of threats to information and privacy.

MSIS 3203 Advanced Computer Programming for Business. Prerequisite(s): 2203. Advanced programming features are examined with an emphasis on the development of computer programs for business applications.

MSIS 3223 Operations Management. Prerequisite(s): MSIS 2103, STAT 2023 and AUNTHET 2103 or equivalent. An examination of the use of management of processes or systems that create goods and provide services. Management decision-making techniques and their application to problems in production and operations management. Decision analysis, forecasting, facility layout, location planning, quality management, inventory planning, and project management.

MSIS 3233 Management Science Methods. Prerequisite(s): 3223 and calculus. Deterministic operations research techniques applied to the resource allocation and operational problems encountered in accounting, economics,
Management Science and Information Systems (MSIS) • 295

2014-2015 University Catalog

finance, management and marketing. Linear programming, goal programming, integer programming and network models.

MSIS 3243 Managerial Decision Theory. Prerequisite(s): 3223 and calculus. Decision processes under risk and uncertainty. The use of models in business decision-making with outcomes governed by probability distributions. Bayesian decision analysis, utility measurements, game theory, Markov chains, queuing theory, simulation, and inventory models.

MSIS 3333 Database Systems Design, Management and Administration. Prerequisite(s): 2203 and MIS or CS or ACCT majors only. Extensive data modeling implemented and queried using SQL, DDL, and DML. Data integrity and accessibility, related network environment. Related database concepts including data warehousing, database security, data and database administration. Required for MIS majors.

MSIS 3363 Advanced Management Information Systems Programming. Prerequisite(s): 2203 or equivalent. Programming tools with applications in industry. Advanced programming procedures, processes and algorithms.

MSIS 3393 Advanced Spreadsheet Modeling and Programming. Prerequisite(s): 2103 and permission of instructor. 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.


MSIS 4010 Applied Management Science and Information System Studies. 1-6 credits, max 6. Prerequisite(s): Consent of department head and MSIS majors only. Structured internship, field study or independent project with supporting academic study.

MSIS 4020 Applications Software Tools and Techniques. 1-3 credits, max 3. Prerequisite(s): 3303, 2203, permission of instructor. Hands-on experience with selected software-based tool or programming languages such as SAP, SQL, PERT/CPM, etc.

MSIS 4033 Information Systems Project Management and Communication. Prerequisite(s): 2103. This class will discuss 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.


MSIS 4133 Information Technologies for Electronic Commerce. Prerequisite(s): 4403. Advanced Internet and web technologies and 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.

MSIS 4233 Applied Information Systems Security. Prerequisite(s): 3213, 4523. An investigation into the various technical aspects of attacking and guarding against attacks and failures in various types of information systems. Course content may vary but will generally include computer, network, and data protection technologies (e.g. firewalls, packet filters, proxy servers, user authentication and validation techniques, encryption, backup methodologies, system and component redundancies, etc.). Various threats and attack methods will be examined.


MSIS 4253 System Certification and Accreditation. Prerequisite(s): 3123. Introduction to the certification and accreditation process. Risk analysis, system security analysis, and other topics.

MSIS 4263 Decision Support and Business Intelligence Applications. Prerequisite(s): 2103 and knowledge management tools and techniques for organizational decision support. Knowledge-based systems, decision support systems, and data mining techniques such as inductive learning and neural networks.

MSIS 4273 Legal and Ethical Issues in Information Systems. Prerequisite(s): 3123. An analysis of information systems law in regard to rights of privacy, freedom of information, confidentiality, work product and 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.


MSIS 4363* Web Application Development. Prerequisite(s): 4003. Develop next-generation, data driven web applications involving database development, server-side business logic, and advanced user interface design.

MSIS 4373* Advanced Topics in Management Information Systems. Prerequisite(s): Senior standing and consent of instructor. 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.

MSIS 4443* Introduction to Business Dynamics. Prerequisite(s): 2103 and 3223 and STAT 2023. Simulation modeling of business systems, such as inventory, financial management, data communications, information system problems, or other queueing situations. Collection and numerical analysis of associated data model validation and verification, model sustainability, and understanding of simulation as a useful tool in management science and information systems.

MSIS 4523* Data Communication Systems. Prerequisite(s): 2103. 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 telecommunication components function are stressed.

MSIS 4943 Decision-Making Tools for Sports Management. Prerequisite(s): 3223. This course is designed as an elective for MGMT students enrolled in the Sports Management option. Useful decision tools such as statistical inference, decision analysis, mathematical programming, forecasting and simulation are used to aid in decision making faced by sports administrators and decisions made during sporting contests. Current ‘hot’ issues in sports decision-making will also be examined.

MSIS 5020* Advanced Applications Software Tools. 1-3 credits, max 3. Advanced hands-on experience with selected software-based tool or programming languages such as SAP, SQL, PERT/CPM, etc. For graduate credit only.

MSIS 5033* Information Systems Project Management. Prerequisite(s): Consent of MS in MIS director, MSTM director or MBA director. This class covers the important multi-faceted dimensions of directing and leading information systems projects. Topics will include behavioral, technical, quantitative and communications issues faced by those managing projects.

MSIS 5123* Enterprise Resource Planning. Prerequisite(s): Admission to a graduate program. 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.

MSIS 5133* Advanced Web Based Application Development. Prerequisite(s): Admission to MBA, MSTM, or MS in MIS program, a programming object-oriented language and 5643 or instructor consent. 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.

MSIS 5223* Object-Oriented Programming Applications for Business. Prerequisite(s): 5643, graduate standing and computer programming proficiency; or consent of MS in MIS director. Object-oriented programming concepts and applications for business in a global environment. Implementation through an appropriate object-oriented programming language.

MSIS 5303* Quantitative Methods in Business. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director; algebra and spreadsheet proficiency required. Application of quantitative techniques to business problems. Linear programming, transportation and assignment models, goal programming, integer programming, and networks.

MSIS 5313* Production Operations Management. Prerequisite(s): Admission to MBA program or consent of MBA director and 5303. The management of operations in manufacturing and service organizations. Production planning, facility location and layouts. Inventory control, waiting line problems and simulation. Project management and quality control. Emphasis is on a management science approach.

MSIS 5393* Advanced Spreadsheet Modeling. Advanced spreadsheet modeling skills critical to business problem solving. Presentation, analysis, solution and communication facets are emphasized.
MSIS 5413* Advanced Management Science. Prerequisite(s): Admission to MBA program or consent of MBA director. Advanced management science methods, with computer applications. Mathematical programming, simulation, forecasting, queuing, Markov processes.

MSIS 5600* Special Projects in Business Information Systems. 1-6 credits, max 6. Prerequisite(s): Consent of M in MIS director. Study of advanced topics not covered directly in other classes or directed study under the supervision of a faculty member.

MSIS 5613* Advanced Production and Operations Management. Prerequisite(s): 5313 or equivalent; admission to MBA program or consent of MBA director. Production system, including a synthesis of production and management techniques used by operations managers. A computerized management simulation game provides decision-making experience.

MSIS 5623* Information and Network Technology Management. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Major principles and impact of information technology from a manager’s perspective. Integration of knowledge 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.

MSIS 5633* Business Intelligence Tools and Techniques. Prerequisite(s): Admission to MBA, MSTM or MS in M in program or consent of instructor. 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.

MSIS 5643* Advanced Database Management. Prerequisite(s): Admission to the MBA, MSTM or MS in MIS program or consent of instructor. Advanced theoretical and practical foundations of database systems. Brief review of classical issues surrounding design, analysis, and implementation of databases. Overview and use of modern database systems. Current and emerging issues in the database field.

MSIS 5653* Advanced Systems Analysis and Design. Prerequisite(s): Consent of M in MIS director, MSTM director or MBA director. Systems thinking. Systems life cycle, modeling approaches, methods, tools, and techniques of systems analysis and design for the development of modern organizational information systems.

MSIS 5900* Practicum in Management Information Systems. 1-6 credits, max 6. Prerequisite: Consent of director of and admission to the MS in MIS program. Application of MIS-related methods and skills in a business environment. Integration of knowledge 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.

MSIS 6200* Advanced Topics in Management Information Systems. 3-8 credits, max 12. Prerequisite(s): Doctoral student status and consent of instructor. Special advanced topics in management information systems for doctoral students.

MSIS 6300* Contemporary Topics in MIS Research. 1-6 credits, max 6. Prerequisite(s): Doctoral standing. In-depth study in one or more topics in the MIS 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.

MSIS 6333* Overview of MIS Research. Prerequisite(s): Doctoral standing. 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.

MSIS 6343* Advanced Methods in MIS Research. Prerequisite(s): Doctoral standing. Development of advanced methodological skills necessary to carry out research in the chosen area of study within the field of MIS. 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)

Marketing (MKTG)

MKTG 3213 Marketing. Prerequisite(s): Minimum of 45 credit hours. Marketing strategy and decision-making. Consumer behavior, marketing institutions, competition and the law.

MKTG 3263 Entrepreneurial Marketing. Prerequisite(s): EEE 3023, MKTG 3213 and completion of business core classes or instructor permission. 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. No credit earned by students with credit in EEE 5223 or MKTG 5223. (Same course as EEE 3263)

MKTG 3313 Personal Marketing and Professional Development. 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).

MKTG 3323 Consumer and Market Behavior. Prerequisite(s): 3213. Qualitative and quantitative analyses of the behavior of consumers; a marketing consideration of the contributions of economics and the behavioral disciplines to consumer behavior.

MKTG 3333 Nonprofit Marketing. Prerequisite(s): 3213. Applied marketing knowledge with attention given to those concepts and methods used in nonprofit marketing.

MKTG 3433 Promotional Strategy. Prerequisite(s): 3213. Promotional policies and techniques and their application to selling problems of the firm.

MKTG 3473 Professional Selling. Prerequisite(s): 3213. 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.

MKTG 3511 Sales Practicum. Prerequisite(s): 3213, 3513 or concurrent enrollment in MKTG 3513. Students in 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.

MKTG 3513 Sales Management. Prerequisite(s): 3213. Sales planning and control, organization of the sales department, developing territories, motivating salespersons and control over sales operations.

MKTG 3611 Retailing Practicum. Prerequisite(s): 3213, 3613 or concurrent enrollment in MKTG 3613. 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.

MKTG 3613 Retailing Management. Prerequisite(s): 3213. Applied marketing knowledge, with attention given to those concepts and methods used in retailing.

MKTG 3713 Sports Marketing. Prerequisite(s): 3213, 3323 and 3433. Applied marketing knowledge with attention given to those concepts and methods used in sports marketing.

MKTG 3813 Business to Business Marketing. Prerequisite(s): 3213. A strategic overview of the marketing of products and services to business, government and not-for-profit organizations.


MKTG 4223 Supply Chain Management. Prerequisite(s): 3213. An economic and operational analysis of the physical flow of goods and materials. A system interpretation of marketing channels.

MKTG 4333* Marketing Research. Prerequisite(s): 3213, 3323, STAT 2023. Basic research concepts and methods. Qualitative and quantitative tools of the market researcher.

MKTG 4343 Brand Marketing. Prerequisite(s): 3213 and 3323. 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.

MKTG 4443 Social Issues in the Marketing Environment. Prerequisite(s): 3213. Social and legislative considerations as they relate to the marketplace.

MKTG 4550 Problems in Marketing. 1-9 credits, max 9. Prerequisite(s): 3213. Problems in marketing. Specific topics vary from semester to semester.

MKTG 4553 International Marketing. Prerequisite(s): 3213. 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.

MKTG 4683 Managerial Strategies in Marketing. Prerequisite(s): 3213, 3323 and a minimum of eight credit hours in marketing, ACCT 2103 and 2203, ECON 2103 and 2203, FIN 3113, LSB 3213, MGMT 3013, MSIS 3013. 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.)

MKTG 4693 Marketing Strategy and Customer-Employee Interactions. Prerequisite(s): 3213, 3323 and a minimum of nine credit hours in Marketing, ACCT 2103 and 2203, ECON 2103 and 2203, FIN 3113, LSB 3213; Requires consent of department to enroll. 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.)

MKTG 4773 Services Marketing. Prerequisite(s): 3213. Conceptual and managerial tools for students who intend to be involved in 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.

MKTG 4850  Applied Marketing Studies. 1-6 credits, max 6. Prerequisite(s): 12 credit hours of marketing and consent of instructor. Structured internship or field project with supporting academic study.

MKTG 4973  New Product Development. Prerequisite(s): 3213, 4333. The elements involved in creating and marketing a successful new product. Qualitative and quantitative methods will analyze data collected from focus groups, including survey, and test a new product concept.

MKTG 4983  Database Marketing. Prerequisite(s): 3213, 3323, MSIS 2103 or consent of instructor. An information-driven process to develop, test, implement, measure, and adopt customized marketing programs and strategies.

MKTG 4993  Electronic Commerce Marketing. Prerequisite(s): 3213, 3433, MSIS 2103 or consent of instructor. Digital interactive tools changing the management of markets. The development and impact of electronic commerce on business and use of interactive (electronic) marketing for building one-to-one relationship with customers.

MKTG 5133*  Marketing Management. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. 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.

MKTG 5213*  Service Marketing. Prerequisite(s): 5133. Services and services markets with emphasis on services research and services management.

MKTG 5220*  Seminar in Marketing. 3 credits, max 9. Prerequisite(s): 5133. Selected topics in marketing. Industrial marketing, product management, strategic marketing planning, international marketing, and services marketing.

MKTG 5223*  Entrepreneurial Marketing. Prerequisite(s): Admission to MBA program or instructor permission. 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 EEE 5223)

MKTG 5233*  Global Competitive Environment. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. Environmental effects on 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*)

MKTG 5243*  Base SAS Programming for Database Marketing. Prerequisite(s): Admission to a SSB graduate program or consent of MBA director. 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.

MKTG 5253*  Advanced SAS Programming for Marketing Analytics. Prerequisite(s): MKTG 5243 or consent of instructor. 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.

MKTG 5313*  Marketing Research Methodology. Prerequisite(s): 5133. Research methodology applied to marketing problems. Measurement, survey research, experimentation, and statistical analysis of data.

MKTG 5500*  Current Topics in Marketing Analytics. Prerequisite(s): Admission in any graduate program in business school or consent of instructor. Current topics in marketing analytics such as web analytics, marketing optimization analytics, high-performance analytics, visual analytics, marketing campaign analytics.

MKTG 5553*  International Marketing Strategy. Prerequisite(s): 5133. An analysis of marketing management in the global environment focusing on international marketing management and corporate strategy decisions.

MKTG 5613*  Seminar in Consumer Behavior. Prerequisite(s): 5133 or consent of instructor. Psychological, sociological, and anthropological theories related to consumer decision processes. Special emphasis on current empirical research in consumer behavior.

MKTG 5733*  Introduction to Marketing Analytics. Prerequisite(s): Admission in MBA program or consent of instructor. Analytic tools including exploratory and graphical techniques, variable associations and correlations, regression, ANOVA and other related modeling techniques to improve managerial decision making.

MKTG 5743*  Advanced Marketing Analytics. Prerequisite(s): MKTG 5733 or consent of instructor. Advanced analytic tools such as neural networks, decision trees, classification and prediction models to generate deeper customer insights and to improve managerial decision making.

MKTG 5883*  Advanced Data Mining Applications. Prerequisite(s): 5963 or permission from instructor. 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.

MKTG 5963*  Data Mining and Customer Relationship Management Applications. Lab 2. Prerequisite(s): 5963 or consent of MBA, MIS/MSIS, MSTM director or assistant director or instructor. 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 role 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.

MKTG 5973*  New Product Development. Prerequisite(s): Acceptance into the MBA program or consent of the MBA director. Elements involved in creating and selling a successful new product in a complex environment, including internal organizational and external environmental influences.

MKTG 5983*  Database Marketing. Prerequisite(s): Consent of MBA, MIS and MIS/MSIS, MSTM director or assistant director or instructor. 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.

MKTG 5993*  Digital Business Strategy. Prerequisite(s): Consent of MBA, or MSTM director or instructor. Business employment of digital technologies to craft a superior and unique value proposition for its customers and strategic partners.

MKTG 6100*  Advanced Seminar in Marketing. 1-3 credits, max 6. Prerequisite(s): Consent of instructor and doctoral student standing. Specialized topic in marketing for doctoral students.

MKTG 6323*  Seminar in Advanced Consumer Behavior. Prerequisite(s): MKTG 5133 or consent of instructor. 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.

MKTG 6413*  Advanced Marketing Research. Prerequisite(s): 5963 or 5963 or consent of MBA director or MIS director or instructor. Introduction to the latest empirical marketing research and advanced analytic techniques such as MANOVA, Confirmatory Factor Analysis, Cluster Analysis, Scaling Techniques, Conjoint Analysis and Structural Equation Models.

MKTG 6513*  Seminar in Marketing Theory. Prerequisite(s): 5133 or consent of instructor. Development of an evaluation of marketing theory.

MKTG 6683*  Seminar in Marketing Strategy. Prerequisite(s): 5133 or consent of instructor. 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.

MKTG 6913*  Measurement and Experimental Design. An analysis of measurement issues from both psychometric and marketing perspectives. Scale construction and validation. The design, analysis, and evaluation of marketing experiments.

Mass Communications (MC)

MC 1143 (D,S) Media in a Diverse Society. 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.

MC 2003  Media Style and Structure. Lab 2. Prerequisite(s): ENGL 1213 or 1223 or 1413 with grade of “C” or higher, and departmental majors only. 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. No credit for students with credit in SC 3003.

MC 2023  Electronic Communication. Prerequisite(s): ENGL 1213 or 1223 or 1413 with a grade of “C” or better, and departmental majors only. 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. No credit for those with prior credit in SC 3023.

MC 3173 (H) History of Mass Communication. Growth and development of mass communication systems in America, with emphasis upon the economic, 2014-2015 University Catalog
social and political interaction of the media.

MC 4143 Ethics and Issues in Mass Communications. Prerequisite(s): 2003 and 2023 with a grade of "C" or better in both; and a minimum grade of 70 on the Language Exam. Students examine classical theories of ethical behavior and their relevance 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.

MC 4153 (I) International Mass Communication. Examination of the nature and flow of news information 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 5253.

MC 4163 Mass Communication Law. Prerequisite(s): 2003 and 2023 with a grade of "C" or better in both; and a minimum grade of 70 on the Language Exam. 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 5163.

MC 4360 Special Problems in Mass Communication. 1-3 credits, max. 6. Prerequisite(s): Junior standing, a minimum of 3.0 GPA, or consent of instructor. Independent study and project development to fit the student’s field of study.

MC 4733 Responsibility in Mass Communication. Prerequisite(s): 2003 with a grade of "C" or better, and a minimum grade of 70 on the Language Exam. Interaction between mass media and society with emphasis upon the communicator’s ethics and responsibilities. Meets with 5733. No credit for students with credit in 5733.

MC 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, first year undergraduate program participation. A guided research 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 Media and Strategic Communications.

MC 5000* Thesis. 1-6 credits, max. 6. For mass communication graduate students who are candidates for the master’s degree.

MC 5010* Capstone Project or Creative Component. 1-3 credits, max. 4. Prerequisite(s): "B" or better in 5113, 5333, and 5651. Capstone research project or creative activity for a mass communication graduate student electing to not write a thesis to complete a master’s degree.

MC 5020* Advanced Practicum or Internship in Mass Communication. 1-3 credits, max. 3. Prerequisite(s): One semester of graduate course work and consent of instructor. Applied training allowing students to relate theoretical principles to situations in professional settings. Required for students without mass media backgrounds.

MC 5030* Independent Study in Mass Communication. 1-3 credits, max. 3. Prerequisite(s): Consent of instructor. Independent study, directed readings or project development in mass communications to fit the student’s academic and professional interests.

MC 5113 Methods of Research in Mass Communication. Principles and techniques of research; research planning, design and measurement in mass communication.

MC 5163* Mass Communication Law. Prerequisite(s): 2003 and graduate standing. 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 4163. No credit for students with credit in 4163.

MC 5223* Mass Communication Research Analysis and Interpretation. Prerequisite(s): 5113. Single- and multi-variate analysis, interpretation and reporting of mass communication research data. Use of computers in research analysis.

MC 5253* International Mass Communication. 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 4153.

MC 5333* Process and Effects of Mass Communication. Mediating factors that affect interaction of ingredients in the communications process, and how these factors can affect the fidelity of information conveyed.

MC 5352* Media Relations. Prerequisite(s): Graduate standing. 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 4382. No credit for students with credit in SC 4383.

MC 5520* Specialized Strategic Communication Applications. 3 credits, max. 6. Prerequisite(s): 5353 and graduate standing. 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.

MC 5540* Specialized Multimedia Journalism Applications. 3 credits, max. 6. Prerequisite(s): Graduate standing. Professional journalism at an advanced level. Special topics in areas such as sports and announcing, 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.

MC 5540* Specialized Sports Media Applications. 3 credits, max. 6. Prerequisite(s): Graduate standing. 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 the same semester or with the same subtitle.

MC 5563* Integrated Marketing Communication. Prerequisite(s): 2003 and SC 2013 or SC 2183 or MKTG 3213; and graduate standing. Planning and the value of coordinating the various promotional mix elements within a communication campaign to create maximum clarity and impact. Communication elements including advertising, public relations, direct marketing and sales promotion and examine strategies for combining and integrating them into an effective campaign. Theories, models and tools to make better promotional communication decisions. No credit for students with credit in 4563.

MC 5651* Introduction to Graduate Study in Mass Communications. Prerequisite(s): Graduate standing. 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.

MC 5733* Responsibility in Mass Communication. Prerequisite(s): Graduate standing. Interaction between mass media and society with emphasis upon the communicator’s ethics and responsibilities. Meets with 4733. No credit for students with credit in 4733.

MC 5753* Media and Elections. Prerequisite(s): Graduate standing. Examination of media’s role in the political process with primary emphasis on print and broadcast journalism practices. Meets with MMJ 4753. No credit for students with credit in MMJ 4753.

MC 5770* Seminar in Communication Media. 1-3 credits, max. 9. Prerequisite(s): Graduate standing. International communication, media history, legal research, new technology, women and the media, television and children, industrial television, and communication research.

MC 5773* Censorship. Prerequisite(s): Graduate standing. A 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 4773.

MC 5853* Strategic Communication Management. The focus of this course is on an integrated approach to the management of communication in an organization, using theoretical components from both public relations and advertising, but particularly gaining an understanding of the strategic components and issues critical to communication managers and reviewers. The focus will be on identifying relevant ethical issues and their specific applications relevant to the job. The students will also review and discuss examples of past and current public relations and advertising campaigns that have been successful or unsuccessful in their execution. The students will also explore the role of the communication manager in effective campaign development in mass communications to fit the student’s academic and professional interests.

MC 5863* Managing Multimedia News Outlets. Prerequisite(s): 2003 and graduate standing. Basic issues, concepts, operational procedures and strategies associated with effectively managing media corporations. Examines management operations related to media convergence. Emphasis is placed on making ethical decisions and administrative choices in staffing and content that reflect a community’s diversity. Meets with MMJ 4863. No credit for students with credit in MMJ 4863.

MC 5883* Advanced Media Management. Prerequisite(s): Graduate standing. Management concerns in four areas of mass communication practice: public relations, advertising, broadcasting and print journalism. Different emphasis on topics according to student demand or need.

MC 5923* Law and Ethics for Public Relations and Advertising. Prerequisite(s): 5163 and graduate standing. A critical examination of the legal and ethical issues confronting public relations and advertising practitioners. Focus on First Amendment rights of public relations and advertising professionals; the interpretation and application of statutes, regulations and judicial opinions to specific situations; and the application of ethical reasoning and professional codes of conduct to determine the most ethical action. Meets with JB 4923. No credit for students with credit in JB 4923.

MC 5953* Strategic Health Communications Campaigns. Prerequisite(s): Graduate standing. 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.

Master of Business Administration (MBA)

MBA 5010* Independent Study. 3-6 credits, max 6. Prerequisite(s): Admission to MBA program or consent of MBA director. Investigation of advanced research topics or directed study under the supervision of a faculty member. Consent of MBA Graduate Studies Committee required.

MBA 5100* Professional Development. 1 credit, max 6. Prerequisite(s): Admission to MBA program or consent of MBA director. Career and professional development of MBA students. A blend of guest speakers, projects, and exercises used to better prepare students for advanced business careers.

MBA 5192* Managing Operations and Decision Processes. Prerequisite(s): 5172. 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.

MBA 5261* Legal Issues in Business. Prerequisite(s): Admission to MBA program or consent of MBA director. 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.

MBA 5300* Current Business Topics. 1-6 credits, max 9. Prerequisite(s): Admission to the MBA program or consent of the director. Examination of selected topics representing the most current and academic business concepts.

MSE 5123* Advanced Composites Manufacturing: Materials, Methods and Applications. Prerequisite(s): Graduate standing and permission of instructor. Covers important topics such as basic concepts and definitions of composite materials, fabrication, structure, properties, and applications of fibrous materials, materials including atomic structure, conduction mechanisms, processing and high temperature seals required for solid oxide fuel cells. Development of a comprehensive, integrated plan of action for the firm.

MSE 5133* Advanced Materials Characterization. 2-4 credits. Prerequisite(s): Graduate standing and permission of instructor. Students will be performing thesis research under the guidance of a supervising professor. At the end of the course students will present the findings of their academic training can help organizations.

MSE 5000* MS Thesis. Lab 1-6. Prerequisite(s): Graduate standing and permission of instructor. 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 the research to the committee and prepare a thesis for approval by the thesis committee.

MSE 5013* Advanced Thermodynamics of Materials. Prerequisite(s): Graduate standing and permission of instructor. 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.

MSE 5023* Diffusion and Kinetics. Prerequisite(s): Graduate standing and permission of instructor. 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.

MSE 5033* Composite Materials. Prerequisite(s): Graduate standing and permission of instructor. Composites are important for advanced 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.

MSE 5043* Advanced Materials Characterization. Lab 1. Prerequisite(s): Graduate standing and permission of instructor. 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 Nanodentation. The lectures will be complemented with hands-on experience to students in labs housing these equipments.

MSE 5053* Smart Materials. Prerequisite(s): Graduate standing and permission of instructor. Advances in new technologies rely on the availability of advanced 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 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.

MSE 5063* Biomedical Materials. Prerequisite(s): Graduate standing and permission of instructor. The course will discuss about structure, composition, properties, and performance of materials with applications in medical and health science.

MSE 5103* Electrical and Optical Properties of Ceramics. Prerequisite(s): Graduate standing and permission of instructor. Inorganic ceramic materials are useful in many applications because of their electrical, optical, dielectric, and magnetic properties. These are important for advancing performance and functionality of existing and new products for aerospace, electronics, 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.

MSE 5123* Advanced Composites Manufacturing: Materials, Methods and Applications. Prerequisite(s): Graduate standing and permission of instructor. Covers important topics such as basic concepts and definitions of composite materials, fabrication, structure, properties, and applications of fibrous materials, materials including atomic structure, conduction mechanisms, processing and high temperature seals required for 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.

MSE 5143* Batteries and Supercapacitors for Energy Storage. Prerequisite(s): Graduate standing and permission of instructor. 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, roles 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.

MSE 6000 PhD Thesis. Lab 1-6. Prerequisite(s): Graduate standing and permission of instructor. 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 the research to the committee and prepare a thesis for approval by the thesis committee.

Mathematics (MATH)

MATH 1483† (A) Mathematical Functions and Their Uses. Prerequisite(s): An acceptable placement score (see http://placement.okstate.edu). 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.

MATH 1493 (A) Applications of Modern Mathematics. Prerequisite(s): An acceptable placement score (see http://placement.okstate.edu). Introduction to contemporary applications of discrete mathematics. Topics from management science, statistics, coding and information theory, social choice and decision making, geometry and growth.

MATH 1513 (A) College Algebra. Prerequisite(s): An acceptable placement score (see http://placement.okstate.edu). Two years of high school algebra recommended. 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 1513, 1613 and 1715 limited to six hours.

MATH 1583 (A) Applied Geometry and Trigonometry. Prerequisite(s): A grade of “C” or better in one of 1483 or 1513, or an acceptable placement score (see http://placement.okstate.edu).
Prerequisite(s): A grade of "C" or better in
Prerequisite(s): 2163. Properties of complex
Prerequisite(s): 3613. An introduction to the
Prerequisite(s): 2153 with grade of "C" or better. A
Prerequisite(s): 1613 with grade of "C" or better,
Prerequisite(s): 2163, 2153. Algebra and geometry of
1-3 credits, max 6. Prerequisite(s): Consent of
Prerequisite(s): 2144 with grade of "C" or better.
Prerequisite(s): 2233, 3013, recommended 3613. An
Prerequisite(s): 2163 and

Problem solving, logic, set theory, functions and relations, number systems,
number concepts for prospective early childhood and elementary educators.

MATH 3613*  Introduction to Modern Algebra.
Prerequisite(s): 2163 and

MATH 3013*  Linear Algebra.
Prerequisite(s): 2133 with grade of "C" or better, or 1715 with a grade of "C" or better, or an acceptable placement score (see http://placement.okstate.edu). An introduction to derivatives, integrals and their applications.

MATH 2153 (A) Calculus II. Prerequisite(s): 2144 with grade of "C" or better. A continuation of 2144, including techniques of integration, series and their applications, parametric equations, and polar coordinates.

MATH 2163 Calculus III. Prerequisite(s): 2153 with grade of "C" or better. A continuation of 2153, including differential and integral calculus of functions of several variables and an introduction to vector analysis.

MATH 2233 Differential Equations. Prerequisite(s): 2153 with grade of "C" or better. Methods of solution of ordinary differential equations with applications. First order equations, linear equations of higher order, series solutions and Laplace transforms.

MATH 2910 Special Studies. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Special subjects in mathematics.

MATH 3013* Linear Algebra. Prerequisite(s): 2153. Algebra and geometry of finite-dimensional linear spaces, linear transformations, algebra of matrices, eigenvalues and eigenvectors.

MATH 3263* Linear Algebra and Differential Equations. An integrated treatment of linear algebra and differential equations. No credit for those with credit in 2233 or 3013.

MATH 3303 Functions and Modeling. Prerequisite(s): 2153. Models of real-world phenomena using functions, rates of change, basic differential equations, and other concepts from algebra and calculus. Connections between college mathematics, secondary school mathematics, and applications. Includes laboratory assignments.

MATH 3403 Geometric Structures for Early Childhood and Elementary Teachers. Prerequisite(s): 1483, 1493 or 1513. Foundations of geometry for prospective early childhood and elementary educators. Linear and angular measure, polygons and polyhedra, similarity and congruence, geometric constructions, motion and transformations. Class format may emphasize student investigation and discovery, discussion and presentation, and working with mathematics tools and software. Together with MATH 3603, prepares students for CIED 3153 and 4153 and/or HDFS 3223.

MATH 3603 Mathematical Structures for Early Childhood and Elementary Teachers. Prerequisite(s): 1483, 1493 or 1513. Foundations of mathematics and number concepts for prospective early childhood and elementary educators. Problem solving, logic, set theory, functions and relations, number systems, number theory, rational numbers, decimals and fractions, exponential probability, and applications. Class format may emphasize student investigation and discovery, discussion and presentation, and working with mathematics tools and software. Together with MATH 3403, it prepares students for CIED 3153 and 4153 and/or HDFS 3223.

MATH 3613* Introduction to Modern Algebra. Prerequisite(s): 3013. An introduction to mathematical reasoning including logical structure of statements, quantifiers, basic set theory and techniques of proof. Modular arithmetic, the Euclidean algorithm, rings and integral domains, polynomial rings.

MATH 3933 Research Methods. Prerequisite(s): 2144, PHYS 1114 or 2014 or 2314, or STAT 2013 or 4013. Students perform independent inquiries and learn to combine skills from mathematics and science to solve research problems. Students will design experiments, collect and analyze data, formulate hypotheses, justify conclusions, create mathematical models, read and evaluate the research literature, and write and present research papers. No credit for students with degree credit in BIOL 3933.

MATH 4003* Mathematical Logic and Computability. Prerequisite(s): 3613 or PHIL 3000 or 3003 or consent of instructor. The basic metatheorems of first order logic: soundness, completeness, compactness, Lowenheim-Skolem theorem, undecidability of first order logic, Godel's incompleteness theorem. Enumerability, diagonalization, formal systems, standard and nonstandard models, Godel numberings, recursive functions, and evidence for Church's thesis. (Same course as PHIL 4003)

MATH 4013* Calculus of Several Variables. Prerequisite(s): 2163 and 3013. Differential and integral calculus of functions of several variables, vector analysis, Stokes' Theorem, Green's Theorem and applications.

MATH 4023* Introduction to Modern Analysis. Prerequisite(s): 2163 and 3013. Consent of instructor. An introduction to the theorems and proofs of one-variable calculus. Properties of the real numbers, sequences and series of constants and functions, limits, continuity, differentiation and integration.

MATH 4033* History of Mathematics. Prerequisite(s): 2153. Early development of mathematics as a science, contributions of Greek mathematics, mathematical advancements of the 17th and 18th centuries, and the mathematics of the 19th and 20th centuries. The emphasis in the course will be on replicating the setting and techniques of the times to understand the nature of a discovery and its relationship to contemporary thought.

MATH 4063 Advanced Linear Algebra. Prerequisite(s): 3013. A rigorous treatment of vector spaces, linear transformations, eigenvalues and eigenvectors, and other concepts from algebra and calculus. Connections between college mathematics, secondary school mathematics, and applications. Includes an integrated treatment of linear algebra and differential equations. No credit for those with credit in 2233 or 3013.


MATH 4263* Introduction to Partial Differential Equations. Prerequisite(s): 2233, 2333, 3013. 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 transforms, Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

MATH 4283* Complex Variables. Prerequisite(s): 2163. Properties of complex numbers, analytic functions of a complex variable, contour integrals, Cauchy's Integral Theorem, power series and Laurent series, residues and poles, conformal mapping, and applications.

MATH 4343* Introduction to Topology. Prerequisite(s): 3613. Topological spaces, basic point-set topology, introduction to surfaces and three-manifolds, introduction to knot theory, applications.

MATH 4403* Geometry. Prerequisite(s): 3013, recommended 3613. An axiomatic development of Euclidean and non-Euclidean geometries.

MATH 4453* Mathematical Interest Theory. Prerequisite(s): 2153. 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.

MATH 4513* Numerical Mathematics: Analysis. Prerequisite(s): 2233, 3013. Knowledge of programming or consent of instructor. Machine computing, algorithms, and analysis of errors applied to interpolation, determinants and approximogal, and applications.

MATH 4590 Professional Practice in Mathematics. Prerequisite(s): 3613. Experience in applying mathematical tools. Determining yield rates, estimating rates of return, amortization.

MATH 4513* Numerical Mathematics: Analysis. Prerequisite(s): 2233, 3013. Knowledge of programming or consent of instructor. Machine computing, algorithms, and analysis of errors applied to interpolation, determinants and approximogal, and applications.

MATH 4533* Linear and Nonlinear Programming. Prerequisite(s): 2163, 3013. Linear programming, simplex methods, duality, sensitivity analysis, integer programming and nonlinear programming.


MATH 4590 Professional Practice in Mathematics. Prerequisite(s): 2163, 3013 and consent of instructor. Experience in applying mathematical principles to solve problems encountered during employment or an internship in business, industry or government. Documentation of solutions through written and oral reports.

MATH 4613 Modern Algebra I. Prerequisite(s): 3613. An introduction to the theory of groups and vector spaces. Meets with 5003* No credit for students with credit in 5003.

MATH 4623 Modern Algebra II. Prerequisite(s): 4613. Continuation of 4613. An introduction to the theory of rings, linear transformation and fields. Meets with

2014-2015 University Catalog
MATH 5013. No credit for students with credit in 5013.

MATH 4663. Combinatorial Mathematics. Prerequisite(s): 3013. Counting techniques, generating functions, difference equations and recurrence relations, introduction to graph and network theory.

MATH 4713. Number Theory. Prerequisite(s): 3613. Divisibility of integers, congruencies, quadratic residues, distribution of primes, continued fractions and the theory of ideals.

MATH 4813. Groups and Representations. Prerequisite(s): 3013 and either 3613 or consent of instructor. An introduction to groups, group actions, symmetry groups, representations and characters. Further topics may include infinite symmetry groups, applications to chemistry and physics, and finite isometry groups and geometry.

MATH 4900. Undergraduate Research. 1-4 credits, max 4. Prerequisite(s): Consent of instructor. Directed readings and research in mathematics.

MATH 4910. Special Studies. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Special subjects in mathematics.

MATH 4950. Problem Solving Seminar. 1-3 credits, max 3. Prerequisite(s): 2233, 3013. The general process of problem solving. Selected problem-solving techniques. Applications to challenging problems from all areas of mathematics.

MATH 4993. Senior Honors Thesis. Prerequisite(s): Consent of instructor, senior standing, Honors Program participation, and one credit hour of HONR 3000 or MATH 4900. A guided reading and research program ending with an honors thesis under the direction of a faculty member, including a public presentation. Required for graduation with departmental honors in mathematics.

MATH 5000. Master's Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of advisor. Directed reading and research culminating in the master's report or master's thesis.

MATH 5003. Modern Algebra I. Prerequisite(s): 3613. An introduction to the theory of groups and vector spaces. Meets with 4613. No credit for students with credit in 4613.

MATH 5010. Seminar in Mathematics. 1-3 credits, max 12. Prerequisite(s): Consent of instructor. Topics in mathematics.

MATH 5013. Modern Algebra II. Prerequisite(s): 4613 or 5003. Continuation of 5003. An introduction to the theory of rings, linear transformations and fields. Meets with 4623. No credit for students with credit in 4623.

MATH 5023. Advanced Linear Algebra. Prerequisite(s): 3013. A rigorous treatment of vector spaces, linear transformations, determinants, orthogonal and unitary transformations, canonical forms, bilinear and hermitian forms, and dual spaces. Meets with 4063. No credit for students with credit in 4063.

MATH 5043. Advanced Calculus I. Prerequisite(s): 3013 and 4023. A rigorous treatment of calculus of one and several variables. Elementary topology of Euclidean spaces, continuity and uniform continuity, differentiation and integration. Meets with 4143. No credit for students with credit in 4143.

MATH 5053. Advanced Calculus II. Prerequisite(s): 4143 or 5043. Continuation of 5043. A rigorous treatment of sequences and series of functions, uniform convergence, differentiation and integration of vector-valued functions and differential forms. Meets with 4153. No credit for students with credit in 4153.

MATH 5133. Stochastic Processes. Prerequisite(s): 2233, 3013 and STAT 5123. 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*)

MATH 5143. Real Analysis I. Prerequisite(s): 4153 or 5053. Measure theory, measurable functions, integration and differentiation with respect to measures.


MATH 5233. Partial Differential Equations. Prerequisite(s): 4013, 4143 and 4233 or consent of instructor. 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.

MATH 5243. Ordinary Differential Equations. Prerequisite(s): 4143 or 5043; 4233; 5023. 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 inequality and Lyapunov method.

MATH 5253. Advanced Ordinary Differential Equations. Prerequisite(s): 5243. Selected topics in ordinary differential equations.

MATH 5283. Complex Analysis I. Prerequisite(s): 4143 or 5043. Basic topology of the plane, functions of a complex variable, analytic functions, transformations, infinite series, integration and conformal mapping.

MATH 5293. Complex Analysis II. Prerequisite(s): 5283. Riemann Mapping Theorem, meromorphic functions, analytic continuation, Dirichlet problem, and entire functions.

MATH 5303. General Topology. Prerequisite(s): 4143 or 5043 or consent of instructor. Basic properties of topological spaces and continuous functions, including connectedness, compactness, and separation and countability axioms. Metric, product, and quotient spaces, Urysohn lemma, and Tietze extension theorem.

MATH 5313. Geometric Topology. Prerequisite(s): 4613 or 5003, 5303. Manifolds, complexes, the fundamental group, covering spaces, combinatorial group theory, the Seifert-Van Kampen theorem, and related topics.

MATH 5413. Differential Geometry. Prerequisite(s): 4013 or 4103 or 5043. Differential manifolds, vector fields, differential forms, connections, Riemannian metrics, geodesics, completeness, curvature, and related topics.

MATH 5473. Financial Calculus. Prerequisite(s): 4143 or 5043, STAT 4203 or consent of instructor. Introduction to derivative and contingent claims valuation. Introduction to the Itô-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 applications.


MATH 5553. Numerical Analysis for Linear Algebra. Prerequisite(s): 3013, and 4513 or CS 4513. Advanced machine computing, algorithms, analysis of rounding errors, condition, convergence, and stability applied to direct and iterative solution of systems of equations, linear least squares problems, and algebraic eigenvalue problems, including LU and QR factorization, conjugate gradients, QR algorithm, and Lanczos method.

MATH 5563. Finite Element Methods for Partial Differential Equations. Prerequisite(s): 4023; 4263; and 4513 or CS 4513 or equivalent. 4143 or 5043 preferred. 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.


MATH 5613. Algebra I. Prerequisite(s): 4613 or 5003. A rigorous treatment of classical results in group theory and ring theory.

MATH 5623. Algebra II. Prerequisite(s): 5613. A rigorous treatment of classical results in module theory and field theory.

MATH 5902. Seminar and Practicum in the Teaching of College Mathematics. Prerequisite(s): Graduate standing in mathematics or consent of instructor. 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.

MATH 5913. Introduction to Research in Mathematics Education. Prerequisite(s): 3613 or 4023 or equivalent. Examination and critique of research in mathematics education. A comparative study of research design, analysis, and reporting of both qualitative and quantitative research.

MATH 6009. Doctoral Research and Dissertation. 1-9 credits, max 24. Prerequisite(s): Consent of advisory committee. Directed reading and research culminating in the PhD or EdD thesis.

MATH 6010. Advanced Seminar in Mathematics. 1-3 credits, max 12. Prerequisite(s): Consent of instructor and student's advisory committee. Directed reading on advanced topics in mathematics.

MATH 6143. Functional Analysis I. Prerequisite(s): 4613 or 5003 or 5023, 5153, 5303. Theory of topological vector spaces including metrizability, consequences of completeness, Banach spaces, weak topologies, and convexity.

MATH 6213. Harmonic Analysis. Prerequisite(s): 5153, 5283. 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.
MATH 6233* Advanced Partial Differential Equations. Prerequisite(s): 5233 or consent of instructor. 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.

MATH 6283* Several Complex Variables. Prerequisite(s): 5293. Elements of function theory of several complex variables, including extension phenomena, domains of holomorphy, notions of convexity, holomorphic maps, and complex analytic varieties.

MATH 6290* Topics in Analysis. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in analysis.

MATH 6323* Algebraic Topology I. Prerequisite(s): 5313. 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.

MATH 6390* Topics in Topology. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in topology.

MATH 6433* Algebraic Geometry. Prerequisite(s): 5623. Affine and projective varieties, dimension, algebraic curves, divisors and Riemann-Roch theorem for curves.

MATH 6453* Complex Geometry. Prerequisite(s): 5283. Complex manifolds, analytic sheaves, differential forms, Dolbeault cohomology, Hodge theory, line bundles, divisors, Kodaira embedding, and vanishing.

MATH 6490* Topics in Geometry. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in geometry.

MATH 6513* Theoretical Numerical Analysis. Prerequisite(s): 5153, 5543 or CS 5543, and 5553 or CS 5553. An advanced theoretical treatment based on function spaces and operator theory of algorithms for machine computing and analysis of errors.

MATH 6590* Topics in Applied Mathematics. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in applied mathematics.

MATH 6613* Commutative Algebra. Prerequisite(s): 5623. Commutative rings, exactness properties of modules, tensor products, integral dependence, chain conditions, completions, filtrations, local rings, dimension theory, and flatness.

MATH 6623* Homological Algebra. Prerequisite(s): 5623. 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.

MATH 6690* Topics in Algebra. 1-3 credits, max 9. Prerequisite: consent of instructor. Advanced topics in algebra.

MATH 6713* Analytic Number Theory. Prerequisite(s): 4283 or 5283. Arithmetic functions, Zeta and L functions, distribution of primes and introduction to modular forms.

MATH 6723* Algebraic Number Theory. Prerequisite(s): 5013 or 5623. Number fields, ideal theory, units, decomposition of primes, quadratic and cyclotomic fields, introduction to local fields.

MATH 6790* Topics in Number Theory. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in number theory.

MATH 6813* Lie Groups and Representations. Prerequisite(s): 4153 or 5053, 4613 or 5003, 5303. Differentiable manifolds, vector fields, Lie groups, exponential map, homogeneous spaces, representations of compact Lie groups, and maximal tori.

MATH 6823* Lie Algebras. Prerequisite(s): 5013 and 5023. Matrix groups, Lie algebras, root systems, structure of semisimple Lie algebras, universal enveloping algebra, and representations of lie algebras.

MATH 6890* Topics in Representation Theory. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in representation theory.

MATH 6923* Research in Undergraduate Mathematics Education. Prerequisite(s): 5913. Continuation of 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.

MATH 6990* Topics in Collegiate Mathematics Education. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Advanced topics in collegiate mathematics education.

Mechanical and Aerospace Engineering (MAE)

MAE 3013 Mechanical and Aerospace Engineering Analysis. Prerequisite(s): MATH 2233 and ENSC 2123 and ENSC 2613. 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 and PDEs 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.


MAE 3113 Measurements and Instrumentation. Lab 2. Prerequisite(s): ENSC 2123 and 2613. 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, homologization and repeatability. Design projects involving the use of analog and digital integrated circuits and the design 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.

MAE 3123 Manufacturing Processes. Prerequisite(s): ENSC 2143 and 3313 or equivalent. 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.

MAE 3223 Thermodynamics II. Prerequisite(s): ENSC 2213. 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.

MAE 3233 Heat Transfer. Prerequisite(s): ENSC 3233. 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.


MAE 3293 Compressible Fluid Flow. Prerequisite(s): ENSC 2213, 3233. Gas flows in one and two dimensions. Basic thermodynamic and dynamic equations. Nozzle and duct flows, choking, plane and oblique shock waves, Prandtl-Meyer expansions, rocket propulsion, frictional high-velocity flows, and heat addition effects. Two-dimensional ideal fluid flow, stream function, velocity potential, linearized flows and method of characteristics.

MAE 3323 Mechanical Design I. Prerequisite(s): ENSC 2113, 2143. Introduction to the design process. Consideration of reliability, factors of safety, product liability, and economics. Use of codes, standards, and other design resources. Design stress analysis of mechanical components such as beams, rings, cylinders, and shafts. Analysis of stiffness and deflection of straight and curved beams, columns, and links. Consideration of failure theories for various types of engineering materials. Application of fatigue analyses in the design process.

MAE 3403 Computer Methods in Analysis and Design. Prerequisite(s): ENGR 1412. Application of linear algebra, numerical methods, statistics, and computer methods in the design, analysis, and simulation of mechanical, thermal, and fluid systems.

MAE 3723 Systems I. Prerequisite(s): ENSC 2123, 2613, and MATH 2233. Physical and mathematical modeling of electrical and mechanical dynamic systems. Transient response of first and second-order systems. Laplace transform technique for solving differential equations; transfer functions, frequency response and resonance.

MAE 4010* Mechanical and Aerospace Engineering Projects. 1-6 credits. Prerequisite(s): Senior standing in MAE and consent of advisor/instructor. Special projects and independent study in mechanical or aerospace engineering.

MAE 4053* Automatic Control Systems. Prerequisite(s): Admission to MAE professional school; 3723 or ECEN 3723. 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*)

MAE 4063* Mechanical Vibrations. Prerequisite(s): Admission to MAE professional school; 3723. 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.
MAE 4213* Spacecraft Design. Prerequisite(s): 3253 and 3113; Admission to MAE professional school. Basic aerospace engineering concepts and spacecraft design. Orbital dynamics, rocket theory and launch vehicle performance, principles of spacecraft stability and control, propulsion systems, aerospac e structures, space environments and its effect on spacecraft design (thermal, radiation, magnetic, solar wind, etc.). Systems management, power systems, telecommunications, cost analysis, spacecraft design.

MAE 4223* Aerospace Engineering Laboratory. Lab 2. Prerequisite(s): Admission to professional school; 3113 and 3253 and 4283. 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 propellant and control-jet experiments, fundamentals of supersonic nozzles, and flight test evaluation of performance, stability, control, and handling qualities of a propeller-driven airplane.

MAE 4243* Propulsion and Power Systems. Prerequisite(s): Admission to MAE professional school; ENSC 3233 and MAE 3293. 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 centrifugal and axial flow turbines and compressors, inlets, diffusers, nozzles, fans, and propellers. Additional propulsion and power systems including chemical and non-chemical rocket motors and other internal combustion and electric motors.

MAE 4263* Energy Conversion Systems. Prerequisite(s): 3233 and 3223; admission to MAE professional school. This course covers the use of chemical 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.

MAE 4273* Experimental Fluid Dynamics. Prerequisite(s): Admission to MAE professional school; 3113 and ENSC 3233. 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.


MAE 4313* Advanced Processing of Engineered Materials. Prerequisite(s): Admission to MAE professional school; ENSC 3313. 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 fabrication, and lapping, multilayer coatings. Mechanical deformation 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.

MAE 4331* Mechanical Metallurgy. Lab 2. Prerequisite(s): Admission to MAE professional school; ENSC 3131. Mechanical deformation processes and strengthening mechanisms in engineering materials. Material failure modes including creep, fatigue, stress corrosion, ductile and brittle fractures.

MAE 4342 Design Projects I. Prerequisite(s): Admission to MAE professional school; 3033, 3113 and 3323. Two-semester design project with team format. Projects are sponsored by a company, agency, or individual. Team members work with mentors, faculty who serve as their team leaders, and students 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.

MAE 4344 Design Projects. Prerequisite(s): Admission to MAE professional school; 3033, 3113 and 3323. 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, progress reports, and a professional log book documenting personal activity and contributions.

MAE 4352 Design Projects II. Prerequisite(s): Admission to MAE professional school and 4342. Second of two-semester sequence of senior design courses.

MAE 4353* Mechanical Design II. Prerequisite(s): Admission to MAE professional school; 3033 and 3323. 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.

MAE 4354* Aerospace Systems Design for Mechanical Engineers. Lab 4. Prerequisite(s): Admission to MAE professional school; 3233 and 3113 and 3323. Multidisciplinary design of aerospace vehicles. Multidisciplinary teams that work on a semester-long project that includes design, construction, and a flight test of a model airplane or a small-scale aircraft optimized for a given set of requirements. Teamwork, leadership and presentation skills emphasized. Students from all appropriate disciplines who wish to participate in this course of the college are encouraged to enroll in MAE 4010.

MAE 4363* Advanced Methods in Design. Lab 2. Prerequisite(s): Admission to MAE professional school; 3113 and 3323. 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 introduced in the laboratory. Presentations on safety, patent law, product liability, and deflection analysis of thin-skinned stiffened structures. Introduction to the finite element method and its applicability in the design process.

MAE 4374* Aerospace System Design. Prerequisite(s): Admission to MAE professional school; MAE 4243, 4283 and 4513. Multidisciplinary design of aerospace vehicles. Multidisciplinary teams that work on a semester-long project that includes design, construction, and a flight test of an aerospace vehicle optimized for a given set of requirements. Teamwork, leadership and presentation skills emphasized. Students from all appropriate disciplines who wish to participate in this course are encouraged to do so by enrolling in MAE 4010.

MAE 4513* Aerospace Structures I. Prerequisite(s): Admission to MAE professional school; 3323. 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.

MAE 4623* Biomechanics. Prerequisite(s): Admission to MAE professional school; MATH 2163 and ENSC 2143 and ENSC 3233. To introduce non-bioengineering students to the field of biomechanics. This class will serve as a foundation for further biomechanics investigations at senior undergraduate and graduate level. At the end of this class students will be able to apply engineering principles to describe the mechanical properties of biological systems.

MAE 4703* Design of Indoor Environmental Systems. Prerequisite(s): Admission to MAE professional school; 3233 and 3233. Design of heating, ventilating and air conditioning systems. Calculation of heating and cooling loads.

MAE 4713* Thermal Systems Design, Simulation and Optimization. Prerequisite(s): ENSC 3233 and MAE 3323 and 3223 and 3403; admission to MAE professional school. Design, modeling, simulation and optimization of thermal systems. Analysis and modeling of components such as fans, pumps, ducts, pipes, fittings, heat exchangers, compressors, thermal storage equipment.

MAE 4733* Mechatronics Design. Prerequisite(s): Admission to MAE professional school; 3113 and 3403. 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.

MAE 5000* Master’s Thesis. 1-9 credits, max 9. Prerequisite(s): Graduate standing in MAE and consent of instructor. Design and development of an advanced analytical and experimental methods to realize optimal designs.

MAE 5003* Advanced Biomaterials Science and Engineering. Prerequisite(s): Graduate standing or consent of instructor. Engineering issues 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.

MAE 5010* Mechanical and Aerospace Engineering Projects. 1-8 credits, max 8. Project in research assigned by the student’s advisor. This course may also be used as a temporary number for new graduate course offerings (3 credit hours).

MAE 5013* Physiological System Analysis for Engineers. Prerequisite(s): Graduate standing or consent of instructor. The introduction of 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 body issue and organ systems under normal and diseased conditions. (Same course as CHE 5273).

MAE 5023* Advanced Biofluid Mechanics. Prerequisite(s): Graduate standing or 3233 (or equivalent). 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 of these interactions.
scales in physiological system, biomechanics, conservation laws, mechanical coupling to vessel deformation and relevant physiology.

**MAE 5030** Engineering Practice. 1-12 credits, max 12. Prerequisite(s): Graduate standing and consent of student’s adviser. Solutions to real-world 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.

**MAE 5033** Advanced Biomedical Engineering. Prerequisite(s): Consent of instructor. 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)

**MAE 5053** Design of Engineering Experiments. Prerequisite(s): Graduate standing. 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.

**MAE 5063** Soft Tissue Mechanics. Prerequisite(s): 3323 or an equivalent course with the consent of the instructor. Introduction to the most commonly used computational techniques for investigating and analyzing the behavior of biological tissues. An surface of stress-strain relationships for various soft tissues, viscoelasticity, and poroelasticity for numerically modeling the properties of biomaterials.

**MAE 5073** Advanced Mechanical Vibrations. Prerequisite(s): 4063 or consent of instructor. Analysis of nonlinear vibrations, classical analysis of continuous systems, numerical methods, and computer applications.

**MAE 5083** Engineering Acoustics. Prerequisite(s): Graduate standing or consent of instructor. Acoustical analysis and measurement techniques, with emphasis on design applications for noise and vibration control in machinery and in buildings.

**MAE 5093** Numerical Engineering Analysis. Prerequisite(s): Undergraduate course in computer programming and consent of instructor. Practical digital methods for obtaining steady-state and transient solutions to lumped and distributed mechanical, fluid and thermal problems.

**MAE 5113** Diffraction in Materials. Prerequisite(s): Graduate standing or consent of instructor. Introduction to crystallography and diffraction with an emphasis on X-ray diffraction, some exposure to neutron diffraction, microscopy, and tomography. Applications will focus on mechanical properties measurements. New methods will be surveyed with an emphasis on current research.

**MAE 5123** Advanced Material Removal Processes. Prerequisite(s): ENSC 3313 and MAE 3123 and graduate standing or consent of instructor. 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.

**MAE 5133** Mechanical Behavior of Materials. Prerequisite(s): ENSC 3313 or equivalent. A unified approach to the behavior and response of engineering materials to applied loads. Emphasis on mechanical and physical fundamental aspects of deformation processes. Spatial scales of atomic physics, micromechanics and continuum mechanics.

**MAE 5143** Tribology. Prerequisite(s): Graduate standing or consent of instructor. The principles of tribology. Definition of tribology, contact of solids, surface topography, 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, dispersion of material composition, mechanical and physical aspects of friction and wear, mechanical properties that influence wear, mechanical properties that influence surface interactions, surface roughness, and wear debris.

**MAE 5153** Precision Engineering I. Prerequisite(s): Graduate standing or consent of instructor. An integrated approach to understanding engineering principles governing product and process designs requiring accuracies typically better than 1 part in 105. Design and control of precision machines and instruments, dimensional and surface metrology, scanning probe microscopy, ultra-precision machining and grinding, and precision assembly.

**MAE 5183** Nanostructured Materials. Prerequisite(s): Graduate standing and basic undergraduate materials science course or equivalent. Size and shape dependence of material properties at the nanoscale. Interaction, surface energy, functionalization, design, and implications of nanostructures, bottom-up and bottom-down nanofabrication, atomic processes and self-assembly. Lithography, thin films, functional coating, Langmuir-Blodgett films, layer-by-layer growth. Properties, applications and synthesis of well-built building blocks; quantum dots (semiconductor nanocrystals), carbon nanotubes (nanotubes and fullerenes), semiconductor nanowires, metal nanoparticles and nanowires.


**MAE 5253** Multiphase Flow. Prerequisite(s): Graduate standing. Theory and practical experience for studying complex transient multiphase flows: basic concepts and definition, dynamics of bubbles, droplets and solid particles, gas-liquid transport in ducts, fluid-liquid transport in ducts, aerosol and spray systems, flow, fluidization, particle separation systems multiphase flow in porous media, breakup of liquid sheets and jets, modeling, advanced experimental techniques for multiphase flow.

**MAE 5273** Advanced Fluid Dynamics II. Prerequisite(s): 5233. Application of advanced fundamental concepts and methods to vorticity dynamics, gravity waves, instability, and an introduction to turbulence. Special topics (e.g. physical laws, compressible flows, biofluids) will also be discussed.

**MAE 5403** Computer-Aided Analysis and Design. Prerequisite(s): Undergraduate course in computer programming and consent of professor. Theory, application and implementation of digital-computer-oriented algorithms for the synthesis, simulation, analysis and design of engineering systems. Advanced FORTRAN methods, programs and computational skills, and data analysis. Implementation of these methods used program libraries, batch processing, remote terminals and graphic display units.

**MAE 5413** Optimal Control. Prerequisite(s): 5713 or ECEN 5713. 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 4413)

**MAE 5433** Robotics, Kinematics, Dynamics and Control. Prerequisite(s): 4053 or ECEN 4413 or consent of instructor. Kinematic and dynamic analysis of robotic manipulators. Inverse and forward 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 4453)

**MAE 5463** Nonlinear System Analysis and Control. Prerequisite(s): 4053 or ECEN 4413. Failure of superposition of effects; phase-plane analysis; limit-cycles; Lyapunov stability; hyperstability and input-output stability; controllability and observability of non-linear systems; feedback linearization; robust nonlinear control system design. (Same course as ECEN 4463)

**MAE 5473** Digital Control Systems. Prerequisite(s): 4053 or ECEN 4413. 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 4473)

**MAE 5483** Advanced Mechatronics Design. Prerequisite(s): 4733 or consent of instructor. 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 4483)

**MAE 5503** Mechanics of Advanced Composites for Structural Design. Prerequisite(s): ENSC 3213 or consent of instructor. 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 a analysis and design of composite laminates is developed.

**MAE 5513** Stochastic Systems. Prerequisite(s): ECEN 3513 and 4503 or STAT 4033 or MAE 4053 or MAE 4063 or consent of instructor. 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)

**MAE 5523** Estimation Theory. Prerequisite(s): 5153 or ECEN 5513. Stochastic model development, parameter estimation and state estimation. The likelihood model, model order determination, estimation, error 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)
MAE 5533* Theory of Elasticity. Prerequisite(s): 3233 or consent of instructor. Basics of tensor calculus, field equations (strain-displacement, compatibility, equilibrium, and constitutive relation), solution of plane elastostatics problems in cartesian and polar coordinates, potential function formulation, introduction to 3D problems.


MAE 5553* Fatigue and Fracture Mechanics. Prerequisite(s): 4333 or consent of instructor. Fracture processes in engineering materials including design considerations, failure avoidance and predictability. Fatigue processes and high-strength, low-ductility materials.

MAE 5563* Finite Element Methods. Prerequisite(s): Graduate standing or consent of instructor. 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.


MAE 5583* Corrosion Engineering. Lab 2. Prerequisite(s): ENSC 3313. Modern theory of corrosion and its applications in preventing or controlling corrosion damage economically and safely in service.

MAE 5593* Theory of Viscoelasticity. Prerequisite(s): Consent of instructor. Advanced stress and strain state solids exhibiting time-dependent behavior. Material characterization and thermodynamic foundation of the constitutive behavior of time-dependent materials such as polymers, solid propellants and metals near their melting points; time-temperature; superposition principle for thermo-physically similar materials; correspondence principle for linearly viscoelastic and associated linearly elastic solutions; integral formulation for quasistatic boundary value problems; treatment of time-varying boundary conditions such as moving boundaries and moving loads; linearly viscoelastic stress waves and approximate methods of linearly viscoelastic stress analysis.

MAE 5633* Advanced Thermal Systems. Prerequisite(s): 3223, 3233, ENSC 3233. Analysis, design, simulation and optimization of thermal systems. Engineering applications to HVAC systems, refrigeration systems, ground-source heat pump systems.

MAE 5653* Refrigeration. Prerequisite(s): 3223. 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, socioeconomics 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.

MAE 5663* Advanced Finite Element Analysis. Prerequisite(s): 5563 or consent of instructor. Development of three-dimensional isoparametric solid elements using Lagrange and serendipity family of elements, solution of three-dimensional elasticity problems and heat transfer problems, variational formulation and computer implementation of structural dynamics analysis using implicit 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.

MAE 5673* Mechanics of Fracture, Contact and Friction. Prerequisite(s): Graduate standing or consent of instructor. 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 interface crack problems, growth of fatigue cracks, microstruct. Partition function. Phase transformations. Thermodynamics of surfaces and defects. Fracture and corrosion.


MAE 5693* Phase Transformations in Materials. Prerequisite(s): Graduate standing or consent of instructor. Principles of phase transformations in material. Structure of materials, phase diagrams, diffusion, solidification, and diffusional and diffusionless transformations will be covered. Recent developments in material research to phase transformations.

MAE 5703* Optimization Applications. Prerequisite(s): Graduate standing. 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*)

MAE 5713* Linear Systems. Prerequisite(s): Graduate standing or consent of instructor. 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*)

MAE 5733* Neural Networks. Prerequisite(s): Graduate standing. Introduction to mathematical analysis of networks and learning rules, and on the application of neural networks to certain engineering problems involving image and signal processing and control systems. (Same course as CHE 5733* & ECEN 5733*)

MAE 5753* Advanced Experimental Mechanics of Solids. Prerequisite(s): 5573 or consent of instructor. Application of advanced experimental mechanics techniques to investigate and characterize response of solid materials. Course material includes use of at least one of the four full-field techniques, characterizing rate- and field-dependent mechanical stress and strain fields.

MAE 5763* Wave Motion and Vibration of Continuous Media. Prerequisite(s): 5573 or consent of instructor. 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 mechanical problems.

MAE 5773* Intelligent Systems. Prerequisite(s): 5733 or ECEN 5733. 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, semiotics); reinforcement learning and hybrid systems, and case studies and design projects. (Same course as ECEN 5773*)

MAE 5783* Principles of Autonomous Decision Making. 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 reinforcement learning and 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 for control analysis.

MAE 5803* Advanced Thermodynamics I. Prerequisite(s): 3223. 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.

MAE 5813* Intermediate Heat Transfer. Prerequisite(s): 3233 or equivalent. Continuation of the topics covered in the undergraduate heat transfer course (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.

MAE 5823* Radiation Heat Transfer. Prerequisite(s): 3233 or equivalent and graduate standing or consent of instructor. The mechanics of the transfer of energy by thermal radiation; radiant properties of materials, energy transfer prediction methods and solar energy topics.

MAE 5843* Conduction Heat Transfer. Prerequisite(s): ENSC 3233. Advanced heat transfer analysis and design, with primary emphasis on conduction.

MAE 5853* Computational Heat Transfer. Prerequisite(s): 3233, graduate standing, knowledge of FORTRAN. 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.


MAE 5873* Advanced Indoor Environmental System. Prerequisite(s): 4703. Heating, air-conditioning, ventilation and refrigeration systems. System and component analysis, design and simulation.

MAE 5913* Advanced Aerodynamics. Prerequisite(s): ENSC 3233 or equivalent. Aerodynamics of the subsonic, transonic, supersonic, and hypersonic flow regimes. Derivation of governing equations and fundamental principles. Analytical and computational analysis methods. Recent developments in computational fluid dynamics.

MAE 5923* Guidance and Control of Aerospace Vehicles. Prerequisite(s): 4053 or ECEN 4413 or equivalent. Navigation, guidance and attitude control of aircraft, launch vehicles and spacecraft. Inertial navigation mechanizations and error analysis. Stability augmentation systems.

MAE 5933* Aeroelasticity. Prerequisite(s): Graduate standing or consent of instructor. 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.
MAE 5943* Unsteady Aerodynamics and Aeroacoustics. Prerequisite(s): ENCS 3233 or equivalent. 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.

MAE 5953* Aerospace Systems Engineering. Prerequisite(s): 3253 or equivalent. Aircraft and spacecraft design from a systems perspective, covering basic systems engineering, cost and weight estimation, basic vehicle performance analysis, modeling and analysis, safety and reliability, lifecycle cost, system integration, risk analysis and management, system realization, and multi-disciplinary optimization (MDO). Additional topics include requirements identification and development, and program planning and control.

MAE 5963* Unmanned Aerial Systems Design and Analysis. Prerequisite(s): Graduate standing or permission of instructor. This course covers concepts related to unmanned aerial systems including design and analysis of propeller driven unmanned aircraft, including remotely piloted and autonomous vehicles. History of unmanned systems. Design of unmanned air systems including concepts of operations, communications, autonomy, navigation, and payload. Focus on unmanned 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.

MAE 5973* Unmanned Aerial Systems Propulsion. Prerequisite(s): Graduate standing or permission of instructor. 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; Propulsive requirements for UAV; Propeller performance and design for 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.

MAE 5983* Aircraft Certification and Test. Prerequisite(s): Graduate standing or consent of instructor. Exploration of the major engineering processes for airworthiness certification of manned and unmanned aircraft. Focus on military and civil 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.

MAE 5993* Microstructural Mechanics. Prerequisite(s): Graduate standing or consent of instructor. Develop 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 inclusions, 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.

MAE 6000* Doctoral Dissertation. 1-15 credits, max 30. Prerequisite(s): Admission to MAE PhD program and consent of the student’s dissertation adviser. Independent research under the direct supervision of the student’s doctoral dissertation adviser.

MAE 6010* Advanced Study. 1-12 credits, max 12. Prerequisite(s): Approval of the student’s advisory committee. 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.

MAE 6123* Advanced Processing of Materials. Prerequisite(s): Graduate standing or consent of instructor. 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.

MAE 6133* Surface Mechanics. Prerequisite(s): Consent of instructor. 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.

MAE 6143* Thermal Analysis of Manufacturing Processes. Prerequisite(s): Graduate standing and consent of instructor. 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.

MAE 6233* Turbulent Fluid Dynamics. Prerequisite(s): 5233. Isotropic turbulence, turbulent wakes and jets, bound turbulent shear flows, transition, hydrodynamic stability and integral calculation methods for turbulent boundary layers.

MAE 6263* Computational Fluid Dynamics. Prerequisite(s): Graduate standing and 5233. Steam function-vorticity and pressure-velocity simulations of incompressible and compressible flows. Temperature and concentration solutions. Applications to various external and internal flow problems.

MAE 6423* System Identification. Prerequisite(s): 5473 or 5713 or ECEN 5473 or ECEN 5713. 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*)

MAE 6453* Adaptive Control. Prerequisite(s): 5473 or ECEN 5473 or ECEN 5713 or MAE 5713. 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, disturbance rejection, 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*)

MAE 6483* Robust Multivariate Control Systems. Prerequisite(s): 5713 or ECEN 5713. Introduction to robust design. 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 Riccati equations; H2 optimal control; H-infinity controller design. (Same course as ECEN 6483*)

MAE 6843* Convection Heat Transfer. Prerequisite(s): 5233 or equivalent. 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.

Mechanical Engineering Technology (MET)

MET 1103 Introduction to Mechanical Engineering Technology. Lab 2. Introduction to mechanical engineering technology, analytical techniques, and data presentation. Orientation to the mechanical engineering technologist’s profession.

MET 1223 Industrial Computer-Aided Design. Lab. 2. Prerequisite(s): GENT 1153. Computer-aided design (CAD) generation of engineering drawings incorporating three-dimensional product design and modeling.

MET 2103 Industrial Materials. Prerequisite(s): CHEM 1314 or CHEM 1215 or CHEM 1414. 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.

MET 2313 Fundamentals of Hydraulic Fluid Power. Lab. 2. Prerequisite(s): PHYS 1114 or 2014. Basic fluid power concepts. Standard hydraulic symbols, component design and application, fluid power system considerations, design and operation.

MET 3003 Dynamics. Prerequisite(s): GENT 2323 or ENSC 2113 and MATH 2123 or 2144 and PHYS 1114 or 2014. Plane motion of particles and rigid bodies. Force-acceleration, work-energy, and impulse-momentum principles. Graphical analysis, mechanisms and vibrations.

MET 3113 Basic Instrumentation. Lab. 2. Prerequisite(s): GENT 3323 or ENSC 2113 and MATH 2123 or 2144. Basic data collection and test equipment for physical science and engineering.

MET 3313 Applied Fluid Mechanics. Prerequisite(s): GENT 2323 or ENSC 2113 and MATH 2123 or 2144 and PHYS 1114 or 2014. 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.

MET 3343 Physical Metallurgy. Lab 3. Prerequisite(s): 2103. Analysis and evaluation of the properties of metals commonly used in product design. Property change caused by hot and cold working, and by heat treatment. Laboratory activities including metallographic specimen preparation, inspection and testing; and standard tests of tensile properties, hardenability, hardness and toughness.

MET 3413 Fundamentals of Pneumatic Fluid Power. Lab. 2. Prerequisite(s): GENT 3323. Basic pnuematic concepts, gas laws, component design and application, system design considerations. Air logic.


MET 3573 Advanced Production Processes. Lab. 3. Prerequisite(s): 1223, GENT 2223. Advanced manufacturing and production processes including polymers and plastics, powder metallurgy, foundry, welding and metal forming. Design for assembly (DFA) and design for manufacture (DFM).

MET 4003 Machine Design I. Prerequisite(s): GENT 3323 or ENSC 2143 and MATH 2123 or 2144. Applications of statics and strength to the design of machine components. Problems of choosing materials, impact and fatigue loading.

MET 4013 Parametric Computer-Aided Modeling. Lab. 2. Prerequisite(s): GENT 1153 and MET 1223. Computer-aided drafting and design using parametric, feature-based solid modeling techniques.

MET 4033  Applied Vibration and Acoustics. Prerequisite(s): MET 3003 or equivalent. 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.

MET 4050  Advanced Mechanical Design. 1-3 credits, max 6. Lab 0-2. Prerequisite(s): junior standing and consent of instructor. Special problems in mechanical engineering technology.

MET 4123  Senior Design Projects. Lab 6. Prerequisite(s): 1223, 4003 and ENGL 3323 (can be concurrent enrollment in ENGL 3323). Selected problems in design integrating principles of drafting, analysis, materials and manufacturing. Design projects are typically supplied by industry.

MET 4203  Finite Element Methods. Prerequisite(s): 4003. 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.

MET 4303  Computer Integrated Manufacturing. Lab 2. Prerequisite(s): GENT 1223, MET 1223. Introduction to programming techniques and manufacturing applications of computer numerical control (CNC) and robotics. Machine capabilities and tooling requirements with programs being prepared manually and with COMPACT II computer assistance.

MET 4313  Electrohydrodynamics and Motion Control. Prerequisite(s): 2313, EET 3104 (can be concurrent enrollment in EET 3104). Principles of electronics as applied to fluid power controls. Trends in modern fluid power systems. Solenoid systems, proportional control, servosystems, programmable controllers, and robotics. Lab includes design, fabrication and operation of practical systems.

MET 4413  Ground Source Heat Pump Systems. Prerequisite(s): 3313 and GENT 3433 and 4433. Design and applications of ground source heat pump systems. Heat pump performance, borehole heat transfer, pressure loss calculations and installation methods.

MET 4453  Applied Thermodynamics. Prerequisite(s): ENSC 2213 or GENT 3433. Mixtures, psychrometrics, combustion, heat engine cycles, heat pumps cycles, internal and external combustion engines. Refrigeration.

MET 4463  Thermal Fluids Laboratory. Lab 3. Prerequisite(s): 3313 or ENSC 3233 and GENT 3433 or ENSC 2213 and GENT 4433. Experimental study of topics in fluid mechanics, thermodynamics, and heat transfer. Interpretation of experimental data and technical report writing.

MET 4883  Tool Design. Lab 3. Prerequisite(s): 2213, 3343. 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.

MET 4993  Mechanical Engineering Technology Practice. Prerequisite(s): Junior standing and consent of department head. Supervised industrial experience in mechanical engineering technology practice with minimal continual duration of eight weeks. Comprehensive journal, written report, and oral presentation.

Mechanized Agriculture (MCAG)

MCAG 1413  Introduction to Engineering in Agriculture. Prerequisite(s): MATH 1513 or concurrent enrollment. 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.

MCAG 2318  Surveying. Lab 3. Prerequisite(s): MATH 1613.A study of the equipment and practices used in surveying for small areas. Common practices of plane surveying: differential, profile, and topographic leveling; field notes, accuracy and precision, error and error control, and land measurement.

MCAG 3011  Ag Structures. Lab 2. Prerequisite(s): MATH 1513. Study of types of agricultural structures, building materials, construction tools and methods. Laboratory will provide opportunity to apply and develop associated skills.

MCAG 3211  Engines and Power. Lab 2. Prerequisite(s): MATH 1513. Theory, operation, performance and diagnostics of internal combustion engines for mobile applications.

MCAG 3222  Metals and Welding. Lab 2. Welding safety and the principles and applications of gas, stick and MIG welding, and cutting.

MCAG 3232  Lab Management and Project Construction. Lab 2. Prerequisite(s): 3222. Theory and practice of managing secondary school Ag Mechanics laboratories including safety, organization, design, project construction and evaluation of student projects.

MCAG 4101  Ag Electrification. Lab 2. Prerequisite(s): MATH 1513. A study of electrical theory and electrical applications in agricultural environments.

MCAG 4112  Land Measurement and Site Analysis. Lab 2. Prerequisite(s): MATH 1513 or equivalent. 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 ENVR 4112)

MCAG 4123  Principles of Farm Equipment. Prerequisite(s): MATH 1513. 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)

MCAG 4200  Topics in Mechanized Agriculture. 1-4 credits, max 4. Investigations in specialized areas of mechanized agriculture.

MCAG 4203  Irrigation Principles. Prerequisite(s): MATH 1513. Sources, measurement and efficient use of irrigation water. Selection of pumping plants and power units. Layout and management of surface and sprinkler systems.

MCAG 4212  Safety and Health in Agribusiness. Lab 2. Prerequisite(s): Junior standing or above. Study of the causes and prevention of accidents in agribusinesses. Investigations including the acute and chronic risks of machinery, animals, gases, confined spaces, outdoor and hazardous materials.

MCAG 4220  Advanced Methods in Agricultural Mechanics. 1-6 credits, max 6. Prerequisite(s): 4222. Developing agricultural mechanics programs for vocational agriculture and technical schools. Application of agricultural mechanics methods, practices and skills to advanced projects.

MCAG 5413  Fundamentals of Conversion. Prerequisite(s): Graduate standing. Principles involved in converting biomass to useful products, including biomass properties, pretreatment, separation, and biochemical and thermochemical conversion. Course available online only through AG*IDEA consortium.

Microbiology (MICR)

MICR 1513  Inquiry-Based Biology. Lab 4. 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.

MICR 2002  Science Literacy. Prerequisite(s): Consent of instructor. An introduction to skills needed to identify, read and critically evaluate scientific literature and to manage and communicate research data in written oral and poster formats.

MICR 2123  Introduction to Microbiology. Prerequisite(s): BIOL 1114. Prerequisite or concurrent enrollment: CHEM 1215 or CHEM 1314. General principles of the biology of microorganisms, including bacteria, viruses, algae, fungi, protozoa and archea.

MICR 2132  Introduction to Microbiology Laboratory. Prerequisite(s): 2123 or concurrent enrollment. 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.

MICR 3033  Cell and Molecular Biology. Prerequisite(s): 2123 and 2132 or BOT 1404 or ZOOL 1604 and CHEM 1225 or CHEM 1515 or equivalent. 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.

MICR 3103  (N) Microbes: Friends or Foes. Explores the impact of microorganisms on human life, the environment, and world history. This course is designed for non-science majors.

MICR 3143  Medical Mycology. Lab 4. Prerequisite(s): 2123, 2132. Examination of fungi as animal pathogens; laboratory techniques used in the identification of human and animal pathogens, and differentiation from common contaminants.

MICR 3154  Food Microbiology. Lab 4. Prerequisite(s): 2123, 2132 and CHEM 1505 or 3053. 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)

MICR 3223  Advanced Microbiology. Prerequisite(s): 2123, 2132; Co-require(s): CHEM 3015 or CHEM 3053. Subcellular structure and function of microorganisms. Synthesis, translocation, and metabolism of cellular macromolecular constituents. Substrate transport and metabolism.

MICR 3253  Immunology. Prerequisite(s): 2123 and 2132. Vertebrate host's ability to defend itself against foreign intrusion. Chemistry and biology of the acquired immune response.

MICR 4000  Honors in Microbiology. 1-4 credits, max 4. Prerequisite(s): Consent of departmental honors committee. Supervised study and research in microbiology.

MICR 4001  Professional Transitions in Microbiology and Cell and Molecular Biology. Prerequisite(s): Declared microbiology major with minimum 70 hours earned and consent of instructor. Understanding major areas and

Oklahoma State University
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.

MIRC 4012 Molecular Microbiology Laboratory I Lab 4. Prerequisite(s): 3223, 4233. 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 4112 the following semester. No credit for students with credit in 5102.

MIRC 4112 Molecular Microbiology Laboratory II Lab 4. Prerequisite(s): 4012. Continuation of 4012. 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 5112.

MIRC 4117 Clinical Microbiology Lab. 12. Prerequisite(s): Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except 30 hours clinical laboratory science. The theory and laboratory study of pathogenic bacteria, viruses, rickettsiae, fungi, and parasites. Includes isolation, identification, antimicrobial susceptibility testing, and medical significance.

MIRC 4123 Virology. Prerequisite(s): 3033 or BIOC 3653; BIOL 3023; Corequisite(s): 3223. Virus-host interactions, including structure-function of animal, plant and bacterial viruses. Discussion of the molecular biology of virus infection and development. No credit for students with credit in 5112.

MIRC 4125 Clinical Chemistry I Lab 9. Prerequisite(s): Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science. The theory and laboratory methodology of analytical biochemistry, clinical microscopy, routine and special procedures, and medical significance.

MIRC 4133 Molecular and Microbial Genetics. Prerequisite(s): 2123, 2132, BIOL 3523; CHEM 2053; Corequisite(s): 3223. The properties of macromolecules, from the structure of proteins and nucleic acids to molecular mechanisms of DNA replication and recombination, transcription, protein synthesis, and gene regulation. Gene transfer mechanisms in bacteria and their viruses. Fundamentals of recombinant DNA technology. No credit for students with credit in 5133.

MIRC 4134 Pathogenic Microbiology Lab. 3. Prerequisite(s): 2123, 2132. Co-requisite(s): 3223. Examination of pathogenic bacteria as they relate to humans, other animals, plants and insects. No credit for students with credit in 5134.

MIRC 4203 Bioinformatics. Prerequisite(s): 3033 or BIOC 3653 or equivalent. 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 5203.


MIRC 4233 Advanced Cell and Molecular Biology. Prerequisite(s): 3033. 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 5233.

MIRC 4236 Clinical Hematology. Lab 12. Prerequisite(s): Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science. Systematized internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science. The theory and laboratory methodology of analytical biochemistry, instrumentation, lab mathematics, routine and special procedures and medical significance.

MIRC 4351 Topics in Clinical Laboratory Science. Prerequisite(s): Concurrent internship in affiliated hospital and all degree requirements for BS in microbiology except for 30 hours clinical laboratory science. The theory and laboratory methodology of analytical biochemistry, instrumentation, lab mathematics, routine and special procedures and medical significance.

MIRC 4353 Photobiology. Prerequisite(s): 3033 or BIOC 3653. The proteins and processes involved in biological photosynthesis, photosensing, and photodamage, including their biological relevance. Involves critical reading of primary literature and examination of protein structures using bioinformatics tools. No credit for students with credit in 5353.

MIRC 4423 Bacterial Cell Walls: Form and Function. Prerequisite(s): 2123, 2132. Focus on structure and synthesis of bacterial and cell wall components (including lipids, peptidoglycan and membrane proteins). Mechanisms of transport across the cell wall, roles components of the cell wall play in the survival of the cell (and in the case of pathogens, the ability to cause disease). Analytic techniques to assess cell wall and the mechanisms used to eliminate these agents from the cell. No credit for students with credit in 5423.

MIRC 4524* Biological Laboratory Instrumentation. Prerequisite(s): CHEM 1515 and BOT 1404 or MIRC 2123 or ZOOL 1604 or equivalents or consent of instructor. Lecture and laboratory course on clinical laboratory instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include liquid handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocyclers, and DNA sequencers. No credit for students with credit in MIRC 5524. (Same course as BIOL 4524)*

MIRC 4531 Chemical Biology. Prerequisite(s): CHEM 3053, 3112, 3153. 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. We will cover (1) basic knowledge of chemical principles needed to understand life, (2) chemical reactions as they occur in the cell, and (3) chemical methods that are valuable to research in the life sciences.

MIRC 4990 Special Problems. 1-3 credits, max 12. Prerequisite(s): Consent of instructor. Investigations in the field of microbiology.

MIRC 4993 Senior Honors Project. Prerequisite(s): Departmental invitation, second faculty member as well. Required for graduation with departmental honors in microbiology. No credit for students with credit in MIRC 5524. (Same course as BIOL 5524)*

MIRC 5000* Thesis. 2-6 credits, max 6. Prerequisite(s): Consent of major professor. A student studying for the MS degree enrolls in this course for six hours credit.

MIRC 5002* Professionalism for the Microbiologist. Prerequisite(s): Microbiology graduate student or permission of instructor. 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.

MIRC 5012* Molecular Microbiology Laboratory I Lab 4. Prerequisite(s): 3223, 4233. 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 5112 the following semester. No credit for students with credit in 4012.

MIRC 5052* Techniques in Molecular Biology Lab. 2. Prerequisite(s): Graduate student and permission of instructor. Provides the basic skills for scientific thinking and analysis in molecular microbiological research.

MIRC 5112* Molecular Microbiology Laboratory II Lab 4. Prerequisite(s): 5012. Continuation of 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 4112.

MIRC 5113* Advanced Immunology. Prerequisite(s): 3253. Advanced study with emphasis on the regulation of vertebrate immune responses.

MIRC 5123* Virology. Prerequisite(s): 3033 or BIOC 3653; BIOL 3023; Co-requisite(s): 3223. Virus-host interactions including structure-function of animal, plant, and bacterial viruses. Discussion of the molecular biology of virus infection and development. No credit for students with credit in 4123.

2014-2015 University Catalog
MICR 513* Molecular and Microbial Genetics. Prerequisite(s): BIOL 3023, CHEM 3015 or CHEM 3053, MICR 2123 and 2132. Co-requisite(s): 3223. The properties of macromolecules, from the structure of proteins and nucleic acids to molecular mechanisms of DNA replication and recombination, transcription, protein synthesis, and gene regulation. Gene transfer mechanisms in bacteria and their viruses. Fundamentals of recombinant DNA technology. No credit for students with credit in 4133.

MICR 514* Pathogenic Microbiology. Prerequisite(s): 2123 and 2132. Co-requisite(s): 3223. Examination of pathogenic bacteria as they relate to humans, other animals, plants and synths. No credit for students with credit in 4134.

MICR 512* Techniques in Molecular Biology. Lab 4. Prerequisite(s): Consent of instructor. Comprehensive laboratory course in research techniques involving classical genetics and molecular biology.

MICR 515* Emerging Infectious Agents. Prerequisite(s): 4123 or 4134 or consent of instructor. An in-depth discussion of the importance of emerging infectious agents, the molecular basis for their emergence, and the broad spectrum of host-microbe interactions favoring the evolution of new infectious agents.

MICR 5160 Seminar. 1 credit, max 2. Prerequisite(s): consent of instructor. Required of and limited to all MS and PhD students majoring in microbiology, cell and molecular biology.

MICR 5203 Bioinformatics. Prerequisite(s): 3033 or BIOL 3653 or equivalent. Fundamental concepts of biological sequence information and inference 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 4203.

MICR 5213 Environmental Microbiology. Prerequisite(s): 3223, BIOL 3653 or equivalent. Microbial processes and fundamental and diverse aspects of microbial ecology, physiology, energetics, and mechanisms of energy conservation. Microbial transformation of organic, inorganic, and pollutant compounds, and bioremediation. Study of modern molecular tools for the detection of microbes in the natural environment.

MICR 5214 Microbial Ecology. Lab 4. Prerequisite(s): 2123 and 2132 and CHEM 3015 or 3053; Co-requisite(s): 3223. Fundamentals of microbial physiology and genetics of microbial populations under various redox conditions. Species and functional guilds in natural habitat. Community structure and diversity of niches. Population interactions and diversity and ecosystem stability. Metabolic activities in natural and managed systems. Microbial capacities and elemental cycling. Genes and genetic exchange in the environment. Modern nucleic acid tools in microbial identification and evolutionary phylogeny. No credit for students with credit in 4214.

MICR 523* Advanced Cell and Molecular Biology. Prerequisite(s): 3033. 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 4233.

MICR 525* Concepts in Medical Genetics. Prerequisite(s): BIOL 3023. Application of genetics to human populations 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 4253.

MICR 5263 Eukaryotic Genetics. Prerequisite(s): 3033. Integration of genetics and genomics principles, the basic processes of gene transmission, molecular biology, gene expression and evolutionary genetics by spanning social and historical context in which genetics are developed. Participants are expected to comprehend the dramatic change in our understanding of human genetics and the role such information has in our view of disability and disease. No credit for students with credit in 4263.

MICR 523* Bioenergetics. Prerequisite(s): 3033 or BIOL 3653. Bioenergetic reactions and mechanisms involved in energy production in plants, animals and microbial systems. No credit for students with credit in 4232.

MICR 533* Controversies in Vaccinology. Prerequisite(s): OSU graduate student status or permission of instructor. Public misconceptions about science abound; however, these misconceptions have a major impact on perceptions 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.

MICR 5353 Photobiology. Prerequisite(s): 3033 or BIOL 3653. The proteins and processes involved in biological photosynthesis, photosensing, and photomediation, including their biological relevance. Involves critical reading of primary literature and examination of protein structures using bioinformatics tools. No credit for students with credit in 4353.

MICR 5423 Bacterial Cell Walls: Form and Function. Prerequisite(s): 2123, 2132, and 3223. Topics will include structure and synthesis of cell wall components (including lipids, peptidoglycan and membrane proteins), mechanisms of transport across the cell wall and the role of components of the cell wall play in the survival of the cell (and in the case of pathogens, the ability to cause disease). In addition, antimicrobial agents that affect the cell wall and the mechanisms used to eliminate these agents from the cell will also be discussed. No credit for students with credit in 4423.

MICR 551* Grant Proposal Preparation. Prerequisite(s): Admission into Microbiology graduate program. Formats, strategies, and styles of research grant proposal writing. Activities include hypothesis development and critical evaluation of research proposals.

MICR 552* Biological Laboratory Instrumentation. Lab 4. Prerequisite(s): CHEM 1515 and BOT 1404 or MICR 2123 or ZOOL 1604 or equivalents or consent of instructor. Lecture and laboratory course in biological instrumentation use, theory, experimental design, maintenance, and troubleshooting. Topics include the chemical and physical handling systems, pH/ISE meters, electrophoresis, spectrophotometers, centrifuges, chromatography, thermocyclers, and DNA sequencers. No credit for students with credit in MICR 4324. (Same course as BIOL 5524).

MICR 5990 Special Problems. 1-4 credits, max 10. Prerequisite(s): Permission of instructor. Investigations in the field of microbiology.

MICR 6000 Dissertation. 1-15 credits, max 45. Prerequisite(s): Consent of major adviser. Research in microbiology for the PhD degree.

MICR 6112 Molecular Biology of Bacterial Viruses. Prerequisite(s): 4123 and 4133. Advanced study of bacteriophages.

MICR 6120 Recent Advances in Microbiology. 1 credit, max 6. Prerequisite(s): One graduate course in biochemistry. Discussion and evaluation of recent scientific contributions in terms of the living organism.

MICR 6133 Cellular Microbiology. Prerequisite(s): A strong undergraduate level background in microbiology, biochemistry or cell biology is expected. The molecular interactions between intracellular parasites and their host cells will be explored, emphasizing the manipulation of normal cellular processes to benefit the intracellular parasite. The course will involve critical reading of the current literature and development of an understanding of microbial and cell biology research techniques.

MICR 6143 Advanced Microbial Physiology. Lab 3. Prerequisite(s): 3223 or consent of instructor. Discussion of selected topics in microbial physiology. Critical analysis of research papers.


MICR 6163 Quantum Microbiology. Prerequisite(s): OSU graduate student or permission of instructor. 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 breakthroughts. It will provide a solid, deep foundation for a successful academic career in microbiology.

MICR 6213 Molecular Microbial Ecology. Prerequisite(s): 3223 or consent of the instructor. Current questions and recent advances in molecular microbial ecology methodologies and approaches, examination of the phylogenetic and metabolic diversity of Bacteria, Archaea, and microeukaryotes in various ecosystems, microbial community composition and ecophysiology in selected habitats, identification of rare members of the microbial community.

MICR 6253* Microbial Evolution. Prerequisite(s): 2123, 2132, BIOL 3653, BIOL 3023. The mechanisms and results of microbial evolution in nature and in the laboratory, with emphasis on microbes as model evolutionary systems, microbial evolution, classification and phylogeny, and discussion of protobiology and the probable fate of engineered microbes.

MICR 6304* Genetics of Simple Eukaryotes. Prerequisite(s): Solid understanding of basic cellular maintenance and propagation processes and consent of instructor. In-depth discussion of lessons learned from simple eukaryotes such as S. cerevisiae (yeast), A. nidulans (fungus), D. melanogaster (fly) and C. elegans (worm).

MICR 6323* Current Topics in Prokaryotic and Eukaryotic Signal Transduction and Gene Regulation. Prerequisite(s): A strong undergraduate level background in microbiology, biochemistry or cell biology is expected. Discussion of current literature on the mechanisms of prokaryotic and eukaryotic signal transduction and gene regulation.

Military Science (MLSC)

MLSC 1000 Leadership Laboratory. 1 credit, max 2, Lab 2. Prerequisite(s): Concurrent enrollment in 1112 and 1212. Learning and practicing basic skills such as rappelling, drill and ceremony, land navigation, individual first aid, individual training in small unit tactics.

MLSC 1112 Foundations of Officerdom. 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. Concurrent enrollment in MLSC 1000 recommended.

MLSC 1212 Basic Leadership. Principles of effective leading, communication skills, and organizational ethical values. Concurrent enrollment in MLSC 1000 recommended. Optional weekend exercise.

MLSC 2122 Leaders' Training Course. 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.
MLSC 2130 Military Physical Conditioning. 1 credit, max 2, Lab 3. Prerequisite(s): Must be enrolled in MLSC theory classes. 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.

MLSC 2233 Individual Leadership Studies. Lab 2. 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.


MLSC 3113 Leadership and Problem Solving. Lab 2. Prerequisite(s): Completion of lower-division MLSC or equivalent, and approval of professor of military science. 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.

MLSC 3223 Leadership and Ethics, Lab 2. Prerequisite(s): 3113. Analysis of tasks, preparation of orders, 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 making a positive climate that enhances team performance.

MLSC 4014 Leader Development and Assessment Course. Lab 8. Prerequisite(s): 3113 and 3223. A five-week camp conducted at an Army post. Individual leadership and basic skills performance.

MLSC 4123 Leadership and Management. Lab 2. Prerequisite(s): 3113 and 3223. Planning conducting and evaluating activities of the ROTC cadet organization. Articulation of 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.

MLSC 4223 Officership. Lab 2. Prerequisite(s): 3113 and 3223. 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.

MLSC 4422 The Tactical Planning Process. Prerequisite(s): ROTC advanced course status or consent of department head. The tactical planning process and its components. Computer tactical simulations used to organize and synchronize the process.

Multimedia journalism (MMJ)

MMJ 3153 Fundamentals of Audio and Video Production. Lab 2. Prerequisite(s): MMJ 3113 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Theory and practice of basic audio and video production techniques leading to later applications in radio, television and multimedia production.

MMJ 3203 News Writing. Lab 2. Prerequisite(s): MC 2003 and MC 2023 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. The basics of news writing, grammar and Associated Press will be stressed. Students will learn the basics of structuring news stories and how to write basic stories including fire, crime, accidents, obituaries, etc.

MMJ 3263 Multimedia Reporting. Lab 2. Prerequisite(s): MC 2003 and MC 2023 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Introduction to basic sources and reporting techniques needed to cover typical government beats. Real-world assignments provide practical experience reporting and writing on deadline across media platforms, such as print, broadcast and web. News judgment as well as interviewing, time-management and writing skills will be addressed. Gathering news in an ethical manner and telling substantive, multi-media stories that encompass the community’s diversity are emphasized.

MMJ 3293 Information Graphics. Lab 2. Prerequisite(s): 3263 and 4423 with “C” or better; and 4393 with “C” or better or concurrent, and minimum grade of 70 on Language Proficiency Exam. 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.

MMJ 3313 Editing in a Multimedia Environment. Lab 2. Prerequisite(s): 3263 with a grade of “C” or better; and a minimum grade of 70 on the Language Proficiency Exam. Principles and practice in editing copy for print, broadcast and web, selecting pictures and video, and writing headlines, cutlines, blurbs, text stories and promos. Strong emphasis placed on language usage and ethical decision-making.

MMJ 3553 Advanced Reporting. Lab 2. Prerequisite(s): 3263 with “C” or better, 3153 or concurrent enrollment, and minimum grade of 70 on Language Proficiency Exam. News writing and reporting techniques combining state-of-the-art newsgathering technology to enable students to produce stories that can be featured across all media platforms.

MMJ 3623 Internet Communication. Lab 2. Prerequisite(s): 2003 and 2023 with grade of “C” or better in each, minimum grade of 70 on Language Exam. Theoretical and practical understanding of how the Internet is changing the way mass media and media-related organizations communicate with audiences.

MMJ 3773 Voice Production and Performance. Prerequisite(s): MC 2003 and MC 2023 with a grade of “C” or better in both; and a minimum grade of 70 on Language Exam. Covers the physical aspects of voice production and how to train and maintain the voice for effective communication. Students will improve their interviewing skills and become more effective communicators, with emphasis on conducting live interviews, ad-libbing and working with a teleprompter.

MMJ 3823 Photography I. Lab 2. Prerequisite(s): MC 2003 and 2023 with grade of “C” or better in each, minimum grade of 70 on Language Exam. Expression of visual communications through photography. Creating and producing photographs using digital equipment and understanding lenses, exposure, color and composition. Manipulation, enhancement and tone correction of photography using photo-editing software. For students who want an elementary understanding of photography or to prepare for advanced work in photography or photojournalism.

MMJ 3873 Audio Production. Lab 2. Prerequisite(s): 3153 with a grade of “C” or better and a minimum grade of 70 on Language Exam. Production techniques for qualified multimedia journalism students who wish creative communications experience beyond that available in the classroom.

MMJ 3900 Multimedia Journalism Internship. 1-3 credits, max 6. Prerequisite(s): 3153 and 3263 with a grade of “C” or better and consent of instructor; and a minimum grade of 70 on the Language Exam. Video production techniques empowering journalists to fulfill their watchdog role in a democracy.

MMJ 3943 Photojournalism. Lab 2. Prerequisite(s): 3263 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Video production and 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 a 35mm single reflex or digital camera.

MMJ 4093 Extreme Digital Persuasion. Lab 2. Prerequisite(s): 3913 with a grade of “B” or better and instructor approval. Broadcast post-production techniques at an advanced level utilizing AfterEffects, Adobe CS3/4, Final Cut Pro Studio, Dreamweaver, and others. Special topics/projects in areas such as special productions, corporate communication productions, digital video, digital media, web & broadcast, and topical productions. This course has been designed to be project driven and to emulate actual client based productions.

MMJ 4243 Programs and Audiences. Prerequisite(s): MC 2003 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Audience analysis, program construction of programs for greatest appeal and use of appeals to attract the desired audience. Program types, rating systems, program selection and audience attention. Design and discussion of programs to reach specific audiences.

MMJ 4313 Public Affairs Reporting. Lab 2. Prerequisite(s): 3263 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Reporting techniques empowering journalists to fulfill their watchdog role in a democracy. Practical experience in accurately reporting and writing on deadline. Focus on multimedia mindset to tell the news of government through people. Emphasizes importance of human diversity and cultivating sources ethically. Stresses the use of government documents.

MMJ 4393 Data Journalism. Prerequisite(s): 3263 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam; STAT 2033 or 2053. Provides practical experience using the computer as a tool for data analysis and visualizing research on social science or political science research methods. Concurscience research methods with the process approach to news writing. Teaches how to find and import data into a spreadsheet and systematically analyze it using basic and advanced techniques. The data analysis will generate an idea for a story for print or broadcast, which must be followed up with reporting and writing that stresses how people are affected.

MMJ 4413 Advanced Reporting and Writing. Prerequisite(s): 4313 with a grade of “C” or better; and a minimum grade of 70 on the Language Exam. Enhancement of writing style and reporting techniques; evaluation of sources and writing practices; and investigating negative coverage of new events.

MMJ 4423 Graphic Design in Multimedia. Lab 2. Prerequisite(s): MC 2003 and MC 2023 with “C” or better, and a minimum grade of 70 on Language Proficiency Exam. Design principles, techniques and practices for a converging media. Includes photo editing and introduction to type for print and online. Emphasizes ethical decision-making in content selection and placement.

MMJ 4433 Feature Writing for Newspaper and Magazine. Prerequisite(s): 15 credit hours of English or journalism course work. Newspaper features and
Music (MUSIC)

MUSI 0500 Student Recital Attendance. Graduation requirement for music degree or certificate candidates. Graded on a pass/fail basis.


MUSI 1011 Piano Class Lessons. Prerequisite(s): Music major status or consent of instructor. For students with no previous experience.

MUSI 1021 Piano Class Lessons. Prerequisite(s): Music major status or consent of instructor.

MUSI 1031 Voice Class Lessons.

MUSI 1071 Single Reed Techniques. Lab 2. Methods for playing and teaching the clarinet and saxophone.

MUSI 1081 Double Reed Techniques. Lab 2. Methods for playing and teaching the oboe and bassoon.


MUSI 1110 Elective Organ. 1-2 credits, max 8.

MUSI 1120 Elective Piano. 1-2 credits, max 8.

MUSI 1130 Elective Voice. 1-2 credits, max 8.

MUSI 1140 Elective Brass. 1-2 credits, max 8.

MUSI 1150 Elective Strings. 1-2 credits, max 8.

MUSI 1160 Elective Woodwinds. 1-2 credits, max 8.

MUSI 1170 Elective Percussion. 1-2 credits, max 8.

MUSI 1180 Secondary Organ. 1-2 credits, max 8.

MUSI 1190 Secondary Piano. 1-2 credits, max 8.

MUSI 1200 Secondary Voice. 1-2 credits, max 8.

MUSI 1210 Secondary Brass. 1-2 credits, max 8.

MUSI 1220 Secondary String. 1-2 credits, max 8.

MUSI 1230 Secondary Woodwind. 1-2 credits, max 8.

MUSI 1240 Secondary Percussion. 1-2 credits, max 8.

MUSI 1260 Major Piano. 1-4 credits, max 8.

MUSI 1270 Major Voice. 1-4 credits, max 8.

MUSI 1280 Major Violin. 1-4 credits, max 8.

MUSI 1290 Major Viola. 1-4 credits, max 8.

MUSI 1300 Major Cello. 1-4 credits, max 8.

MUSI 1310 Major Double Bass. 1-4 credits, max 8.

MUSI 1340 Major Flute. 1-4 credits, max 8.

MUSI 1350 Major Oboe. 1-4 credits, max 8.

MUSI 1360 Major Clarinet. 1-4 credits, max 8.

MUSI 1370 Major Saxophone. 1-4 credits, max 8.

MUSI 1380 Major Bassoon. 1-4 credits, max 8.

MUSI 1390 Major Trumpet. 1-4 credits, max 8.

MUSI 1400 Major French Horn. 1-4 credits, max 8.

MUSI 1410 Major Trombone. 1-4 credits, max 8.

MUSI 1420 Major Euphonium. 1-4 credits, max 8.

MUSI 1430 Major Tuba. 1-4 credits, max 8.

MUSI 1440 Major Percussion. 1-4 credits, max 8.

MUSI 1531 Sight Singing and Aural Skills I. Lab 2. Development of skills in sight singing and aural perception. Taken concurrently with MUSI 1532.

MUSI 1533 Theory of Music I. Lab .5, .7. Choral and instrumental writing and analysis correlated with keyboard skills. Taken concurrently with MUSI 1532.

MUSI 1541 Sight Singing and Aural Skills II. Prerequisite(s): MUSI 1531 and MUSI 1532. A continuation of MUSI 1531. Taken concurrently with MUSI 1543.

MUSI 1544 Theory of Music II. Lab .25. Prerequisite(s): MUSI 1531 and MUSI 1532. A continuation of MUSI 1533. Taken concurrently with MUSI 1544.

MUSI 1623 Introduction to Music Business. Prerequisite(s): Music major status or consent of instructor. A survey of music business procedures, opportunities, technologies and trends.

MUSI 1631 Introduction to Diction for Singers. Designed for Music Education majors. Introduces and develops skills in pronunciation and singing in English, Italian, French and German.

MUSI 2010 Piano Class Lessons. Prerequisite(s): 1021 and music major status. Class lessons for music majors (non-keyboard concentration) preparing for the piano proficiency examination.

MUSI 2052 String Instrument Techniques. Methods for playing and teaching the violin, viola, cello and double bass.

MUSI 2071 Flute Techniques. Methods for playing and teaching the flute. Covered in the commonalities of the woodwinds.

MUSI 2091 Low Brass Techniques. Methods for playing and teaching the trumpet and French horn.

MUSI 2260 Major Piano. 1-4 credits, max 8. Prerequisite(s): 1260.

MUSI 2270 Major Voice. 1-4 credits, max 8. Prerequisite(s): 1270.

MUSI 2280 Major Violin. 1-4 credits, max 8. Prerequisite(s): 1280.

MUSI 2290 Major Viola. 1-4 credits, max 8. Prerequisite(s): 1290.

MUSI 2300 Major Cello. 1-4 credits, max 8. Prerequisite(s): 1300.

MUSI 2310 Major Double Bass. 1-4 credits, max 8. Prerequisite(s): 1310.

MUSI 2340 Major Flute. 1-4 credits, max 8. Prerequisite(s): 1340.

MUSI 2350 Major Oboe. 1-4 credits, max 8. Prerequisite(s): 1350.

MUSI 2360 Major Clarinet. 1-4 credits, max 8. Prerequisite(s): 1360.

MUSI 2370 Major Saxophone. 1-4 credits, max 8. Prerequisite(s): 1370.

MUSI 2380 Major Bassoon. 1-4 credits, max 8. Prerequisite(s): 1380.

MUSI 2390 Major Trumpet. 1-4 credits, max 8. Prerequisite(s): 1390.

MUSI 2400 Major French Horn. 1-4 credits, max 8. Prerequisite(s): 1400.

MUSI 2410 Major Trombone. 1-4 credits, max 8. Prerequisite(s): 1410.

MUSI 2420 Major Euphonium. 1-4 credits, max 8. Prerequisite(s): 1420.
MUSI 2430 Major Tuba. 1-4 credits, max 8. Prerequisite(s): 1430.
MUSI 2440 Major Percussion. 1-4 credits, max 8. Prerequisite(s): 1440.
MUSI 2450 Major Harpsichord. 1-4 credits, max 8.
MUSI 2551 Sight Singing and Aural Skills III. Prerequisite(s): 1541 and 1543. Further development of skills in sight-singing and aural perception. Taken concurrently with 2553.
MUSI 2553 Theory of Music III. Lab .5. Prerequisite(s): 1541 and 1543. Choral and instrumental writing correlated with sight-singing, melodic and harmonic dictation and keyboard skills. Taken concurrently with 2551.
MUSI 2561 Sight Singing and Aural Skills IV. Prerequisite(s): 2551 and 2553. A continuation of 2551. Taken concurrently with 2563.
MUSI 2563 Theory of Music IV. Lab .5. Prerequisite(s): 2551 and 2553. A continuation of 2553. Taken concurrently with 2561.
MUSI 2573 (H) Introduction to Music. Instruments, musical forms and styles, and major composers from the 16th century to the present. For non-majors; no prior musical experience required.
MUSI 2610 University Bands I. 1 credit, max 6, Lab 3-5.
MUSI 2620 Symphony Orchestra I. 1 credit, max 6, Lab 4. (Same course as 3620 & 5620)*
MUSI 2630 University Choral Ensembles I. 1 credits, max 6, Lab 3-5. (Same course as 3630 & 5630)*
MUSI 2722 Introduction to Music Education. Prerequisite(s): 1533, 1543. 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.
MUSI 2773 (H) History of Jazz. Elements and stylistic features of jazz, its evolution and its impact on society.
MUSI 2832 Elementary Music Methods. Prerequisite(s): 2722. 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.
MUSI 2842 Intermediate Music Methods. Prerequisite(s): 2832. Second in a series of two vocal method courses for vocal music education majors. Field experience and peer teaching activities. Curriculum design and evaluation; technology for music instruction; multicultural music in the classroom; music for exceptional children; and music in an integrated curriculum.
MUSI 3022 Piano Skills for Vocal Music Education Majors. Prerequisite(s): 2010 or consent of instructor. Development of skills in sight-reading, score reading, and general ensemble accomplishment for vocal music education majors.
MUSI 3110 Elective Organ. 1-2 credits, max 8. Prerequisite(s): 1110.
MUSI 3120 Elective Piano. 1-2 credits, max 8. Prerequisite(s): 1120.
MUSI 3130 Elective Voice. 1-2 credits, max 8. Prerequisite(s): 1130.
MUSI 3140 Elective Brass. 1-2 credits, max 8. Prerequisite(s): 1140.
MUSI 3150 Elective String. 1-2 credits, max 8. Prerequisite(s): 1150.
MUSI 3160 Elective Woodwind. 1-2 credits, max 8. Prerequisite(s): 1160.
MUSI 3170 Elective Percussion. 1-2 credits, max 8. Prerequisite(s): 1170.
MUSI 3180 Secondary Organ. 1-2 credits, max 8. Prerequisite(s): 1180.
MUSI 3190 Secondary Piano. 1-2 credits, max 8. Prerequisite(s): 1190.
MUSI 3200 Secondary Voice. 1-2 credits, max 8. Prerequisite(s): 1200.
MUSI 3210 Secondary Brass. 1-2 credits, max 8. Prerequisite(s): 1210.
MUSI 3220 Secondary String. 1-2 credits, max 8. Prerequisite(s): 1220.
MUSI 3230 Secondary Woodwind. 1-2 credits, max 8. Prerequisite(s): 1230.
MUSI 3240 Secondary Percussion. 1-2 credits, max 8. Prerequisite(s): 1240.
MUSI 3260 Major Piano. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2260.
MUSI 3270 Major Voice. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2270.
MUSI 3280 Major Violin. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2280.
MUSI 3290 Major Viola. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2290.
MUSI 3300 Major Cello. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2300.
MUSI 3310 Major Double Bass. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2310.
MUSI 3340 Major Flute. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2340.
MUSI 3350 Major Oboe. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2350.
MUSI 3360 Major Clarinet. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2360.
MUSI 3370 Major Saxophone. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2370.
MUSI 3380 Major Bassoon. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2380.
MUSI 3390 Major Trumpet. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2390.
MUSI 3400 Major French Horn. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2400.
MUSI 3410 Major Trombone. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2410.
MUSI 3420 Major Euphonium. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2420.
MUSI 3430 Major Tuba. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2430.
MUSI 3440 Major Percussion. 1-4 credits, max 8. Prerequisite(s); Upper-division examination, 2440.
MUSI 3460 Secondary Harpsichord. 1-2 credits, max 8.
MUSI 3543 (H,I) Music and Culture of Northern Italy. Study of northern Italy's contributions to culture through music and composers, instrument makers, architecture, and visual arts.
MUSI 3573 (D,H) America's Ethnic Music. 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).
MUSI 3582 Music of Non-Western Cultures. Prerequisite(s): 1543 or consent of instructor. Survey of musical styles, forms, genres, performance practices, philosophies, and social impact of music from non-Western cultures, focusing on an examination of how these differ from Western European musical practices and culture, and their influence on the global music community of the 21st century. Knowledge of Western musical terminology and notational practice is required.
MUSI 3583 (H,J) Traditional World Music. Survey of the richly diverse musical traditions of non-western cultures and their influences on the evolution of music of non-western cultures that has prior musical experience required.
MUSI 3610 University Bands II. 1 credit, max 8, Lab 3-5. Prerequisite(s): 4 hours of 2610. (Same course as 2610 & 5610)*
MUSI 3620 Symphony Orchestra II. 1 credit, max 8, Lab 4. (Same course as 2620 & 5620)*
MUSI 3630 University Choral Ensembles II. 1 credit, max 8, Lab 3-5. Prerequisite(s): 4 hours of 2630. (Same course as 2630 & 5630)
MUSI 3640 Rehearsal Practicum. 1 credit, max 3, Lab 1-3. Prerequisite(s): 3722 and 3732 or permission of instructor is required. Designed for Music Education majors who are within two semesters of student teaching. This course prepares future teachers with classroom skills using one of the choral or instrumental ensembles or lab groups as their rehearsal medium.
MUSI 3642 English and Italian Diction and Vocal Literature. Prerequisite(s): 1631. 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.
MUSI 3652 French Diction and Vocal Literature. Prerequisite(s): 1631. 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.
MUSI 3662 German Diction and Vocal Literature. Prerequisite(s): 1631. 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.
MUSI 3712 Basic Conducting. Principles of conducting choral and instrumental groups.
MUSI 3722 Advanced Ensemble Conducting. Prerequisite(s): 3712. Studies in advanced physical conducting techniques and score orientation, score reading, score analysis, and score interpretation.

MUSI 3732 Secondary Choral Methods. Prerequisite(s): 3712. Repertoire, rehearsal procedures, and vocal techniques for the public school choral teacher.

MUSI 3741 Survey of Rock and Roll I. 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 1950 through lecture, reading and musical recordings.

MUSI 3743 Foundations of Music Education. Prerequisite(s): Full admission to Professional Education. Interdisciplinary approach including aspects of philosophy, aesthetics, sociology and psychology as they are applied in music in post-elementary public schools.

MUSI 3751 Survey of Rock and Roll II. 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.

MUSI 3753 History of Music to 1600. Prerequisite(s): 1543 or consent of instructor. 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.

MUSI 3763 History of Music from 1600–1800. Prerequisite(s): 1543 or consent of instructor. 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.

MUSI 3772 Counterpoint. Prerequisite(s): 2563 and satisfactory upper-division examination. Analysis and application of contrapuntal techniques of the 18th century.

MUSI 3783 Form and Analysis. Prerequisite(s): 2563 and satisfactory upper-division examination. Analysis of standard repertoire with emphasis on form and structural harmonic analysis.

MUSI 3842 Marching Band Methods. Prerequisite(s): 1723 and 2832 and concurrent enrollment in 2610 or 3610 (marching band). Organizational responsibilities and charting for public school marching bands. Must be taken concurrently with 2610 or 3610 (marching band).

MUSI 3852 Secondary Instrumental Methods. Prerequisite(s): 2832; 3712. 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.

MUSI 3873 History of Music from 1800–Present. Prerequisite(s): 1543 or consent of instructor. 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.

MUSI 3901 Junior Recital. Prerequisite(s): Junior standing and consent of major applied music teacher.

MUSI 4042 Collaborative Piano. Prerequisite(s): Music major status or consent of instructor. This course introduces piano majors to the vast collaborative piano repertoire and helps them develop skills for future performing and/or teaching. Through coaching sessions and weekly reading and listening assignments, students will learn the difficult and rewarding art of collaborating with other performers. The course will focus on both vocal and instrumental accompanying repertoire. No credit for students with credit in 5042.

MUSI 4100 Music Industry Internship. 1-8 credits, max 8. Prerequisite(s): 90 credit hours and minimum 2.50 GPA in all music and business courses. Directed practical experiences in an approved work situation related to the music industry.

MUSI 4260 Major Piano. 1-4 credits, max 8. Prerequisite(s): 3260 and successful completion of recital attendance requirements.

MUSI 4270 Major Voice. 1-4 credits, max 8. Prerequisite(s): 3270 and successful completion of recital attendance requirements.

MUSI 4280 Major Violin. 1-4 credits, max 8. Prerequisite(s): 3280 and successful completion of recital attendance requirements.

MUSI 4290 Major Viola. 1-4 credits, max 8. Prerequisite(s): 3290 and successful completion of recital attendance requirements.

MUSI 4300 Major Cello. 1-4 credits, max 8. Prerequisite(s): 3300 and successful completion of recital attendance requirements.

MUSI 4310 Major Double Bass. 1-4 credits, max 8. Prerequisite(s): 3310 and successful completion of recital attendance requirements.

MUSI 4340 Major Flute. 1-4 credits, max 8. Prerequisite(s): 3340 and successful completion of recital attendance requirements.

MUSI 4350 Major Oboe. 1-4 credits, max 8. Prerequisite(s): 3350 and successful completion of recital attendance requirements.

MUSI 4360 Major Clarinet. 1-4 credits, max 8. Prerequisite(s): 3360 and successful completion of recital attendance requirements.

MUSI 4370 Major Saxophone. 1-4 credits, max 8. Prerequisite(s): 3370 and successful completion of recital attendance requirements.

MUSI 4380 Major Bassoon. 1-4 credits, max 8. Prerequisite(s): 3380 and successful completion of recital attendance requirements.

MUSI 4390 Major Trumpet. 1-4 credits, max 8. Prerequisite(s): 3390 and successful completion of recital attendance requirements.

MUSI 4400 Major French Horn. 1-4 credits, max 8. Prerequisite(s): 3400 and successful completion of recital attendance requirements.

MUSI 4410 Major Trombone. 1-4 credits, max 8. Prerequisite(s): 3410 and successful completion of recital attendance requirements.

MUSI 4420 Major Euphonium. 1-4 credits, max 8. Prerequisite(s): 3420 and successful completion of recital attendance requirements.

MUSI 4430 Major Tuba. 1-4 credits, max 8. Prerequisite(s): 3430 and successful completion of recital attendance requirements.

MUSI 4440 Major Percussion. 1-4 credits, max 8. Prerequisite(s): 3440 and successful completion of recital attendance requirements.

MUSI 4450 Major Harpsichord. 1-4 credits, max 8.

MUSI 4490* Lessons in Applied Music (Major Field). 1-4 credits, max 4. Prerequisite(s): Bachelor’s degree or equivalent performing level in applied major field. Major applied music field.

MUSI 4600 Chamber Ensembles. 1 credit, max 12. Lab 1-3. Combinations of voice, keyboard, and orchestral instruments for performing chamber music, music theater and duo piano repertoire.

MUSI 4810* Problems in Musical Composition. 1-2 credits, max 8. Prerequisite(s): 1543 and consent of instructor. Practical experience in musical composition.

MUSI 4840* Special Studies in Music Literature. 2 credits, max 4. Prerequisite(s): Junior standing or consent of instructor. Survey of music literature suitable for teaching various levels in applied music.

MUSI 4842 Choral Literature for the Classroom. Prerequisite(s): 3732. Exploration of the vast amount of choral literature available to the choral conductor. Includes repertoire for all ages and all voices.

MUSI 4890* Special Studies in Music Pedagogy. 2 credits, max 4. Prerequisite(s): Junior standing or consent of instructor. Survey of music pedagogical methods suitable for various levels and types of applied music.

MUSI 4901 Senior Recital. Prerequisite(s): Senior standing and permission of major applied music teacher.

MUSI 4912 Orchestration and Arranging. Prerequisite(s): Upper-division standing as a music major or consent of instructor. Orchestration for instrumental ensembles and arranging for choral ensembles.

MUSI 4940 Student Teaching in Public School Music. 6-10 credits, max 10. Prerequisite(s): Full admission to Professional Education, Directed observation, seminars, and supervised student teaching in selected elementary and secondary music programs. Offered on a pass-fail basis.

MUSI 4952* Music in the School Curriculum. 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.

MUSI 4962* Music Education Seminar. Research into latest developments of public school choral and instrumental music.

MUSI 4972 Post Tonal Analysis. Prerequisite(s): 2563 and successfully pass the Upper-Division Theory Battery Exam. Topics for the analysis of music of the 20th and 21st centuries, including set analysis.

MUSI 4990* Selected Studies in Music and Music Education. 1-3 credits, max 8. Short-term area studies in music and music education.

MUSI 4993 Senior Honors Project. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

MUSI 5002* Final Degree Performance. Prepare and perform or conduct a public concert or recital of significant repertoire.

MUSI 5012* Final Degree Project and Oral Examination. 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.

MUSI 5022* Graduate Theory Review. 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.

MUSI 5042* Collaborative Piano. Prerequisite(s): Music major status or consent of instructor. This course introduces piano majors to the vast collaborative piano repertoire and helps them develop skills for future performing and/or teaching. Through coaching sessions and weekly reading and listening
assignments, students will learn the difficult and rewarding art of collaborating with other performers. The course will focus on both vocal and instrumental accompanying repertoire. No credit for students with credit in 4042.

MUSI 5113* Introduction to Graduate Studies in Music. Prerequisite(s): Admission to Master of Music program. 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.

MUSI 5480* Lessons in Applied Music (Minor Field). 1-4 credits, max 12. Prerequisite(s): Bachelor's degree or equivalent performance level in applied major field.

MUSI 5490* Lessons in Applied Music (Major Field). 1-4 credits, max 12. Prerequisite(s): Bachelor's degree or equivalent performing level in applied major field. Private Lessons.

MUSI 5512* Advanced Studies in Music Literature and Pedagogy I. Prerequisite(s): 3753, 3763 or equivalent. Techniques of successful programming, teaching and performance of ensemble literature through a survey of repertoire appropriate to the student’s chosen medium.

MUSI 5522* Advanced Studies in Music Literature and Pedagogy II. Prerequisite(s): 3753, 3763 or equivalent. A continuation of 5512, with emphasis upon music of the 20th century and its attendant specialized performance techniques.

MUSI 5583* Traditional World Music. Survey of the richly diverse music of non-Western cultures emphasizing traditional musical practices prior to contact with Western media. Historical recordings supplemented by video tapes. Knowledge of Western classical music notation helpful. Taught in conjunction with 3583. (Same course as 3583).

MUSI 5600* Chamber Ensembles. 1-2 credits, max 6, Lab 1-3. Combinations of voice, keyboard, orchestral instruments for performing chamber music, music theater and duo piano repertoire.

MUSI 5610* University Bands. 1-2 credits, max 12, Lab 3-5. Large ensembles. (Same course as 2610 & 3610)

MUSI 5620* Symphony Orchestras. 1-2 credits, max 12, Lab 4. Large ensembles. (Same course as 2620 & 3620)

MUSI 5630* University Choral Ensembles. 1-2 credits, max 12, Lab 3-5. Large ensembles. (Same course as 2630 & 3630)

MUSI 5712* Advanced Studies in Conducting I. Prerequisite(s): 3712 and 3722 or equivalent. Acquisition of an expressive conducting gestural vocabulary as it relates to the student’s chosen medium.

MUSI 5722* Advanced Studies in Conducting II. Prerequisite(s): 5712. A continuation of 5712 focusing upon the gestural vocabulary as it relates to the specific complexities of contemporary music.

MUSI 5733* Techniques of Pedagogy and Performance. Prerequisite(s): 3712 and 3722 or equivalent. Advanced techniques and modes for preparing music for performance.

MUSI 5742* Conducting Practicum. Prerequisite(s): 5712, 5722. Supervised conducting opportunities with major OSU ensembles or approved off-campus ensembles.

MUSI 5750* Seminar in Music History. 3 credits, max 9. Prerequisite(s): 3753 and 3763 or equivalent. 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.

MUSI 5842* Music Repertory. Survey of music literature suitable for teaching various levels in applied music.

MUSI 5962* Analytical Techniques in Music I. Prerequisite(s): Passing score on Graduate Theory Placement Exam or 5022. A critical survey of important analytical approaches to tonal and post tonal music.

MUSI 5972* Analytical Techniques in Music II. Prerequisite(s): Passing score on Graduate Theory Placement Exam or 5022. A continuation of MUSI 5962. Topics will include Schenkerian analyses, set theory and other contemporary analytical approaches to post tonal music.

Natural Resource Ecology and Management (NREM)

NREM 1012 Introduction to Natural Resource Ecology and Management. 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.

NREM 1014 (L-N) Introduction to Natural History. Lab 2. 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.

NREM 1113 Elements of Forestry. Lab 3. Survey of forestry as an art, science and profession including forestry 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. One required two-day field trip.


NREM 2013 Ecology of Natural Resources. Prerequisite(s): BIOL 1114 or PLNT 1213. 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.

NREM 2103 Forest Measurements I. Lab 2. Prerequisite(s): 1113; MATH 1715 (or MATH 1513 and 1613); STAT 2013 (or concurrent). An introduction to the measurements of forests, forest products, standing trees, growth, and the calculation of mensural timber volume. Principles and measurement techniques of non-timber components of forest resources.


NREM 2134 Dendrology. Lab 4. Identification, taxonomy and distribution of forest trees and shrubs of the United States; their environmental requirements and utilization.

NREM 3012 Applied Ecology Laboratory. Lab 2. Prerequisite(s): 3013 or concurrent. 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.

NREM 3013 Applied Ecology and Conservation. Prerequisite(s): BOT 1404 or ZOOL 1604; SOIL 2124 preferred. 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.

NREM 3063 Natural Resource Biometrics. Lab 2. Prerequisite(s): STAT 2013 or MATH 1513 or 1483. 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.

NREM 3073 Ecological Genetics. Prerequisite(s): BOT 1404 or ZOOL 1604; STAT 2013 and any ecology course. Physical basis and principles of inheritance and genetic variation in populations, and how they are, are quantified, and manipulated by nature and man. Concepts in population and quantitative genetics and their relationship to the evolution of natural and managed populations.

NREM 3083 Geospatial Technologies for Natural Resources. Lab 3. Prerequisite(s): MATH 1483 or 1493 or 1513. Principles and application of geospatial technologies for natural resource ecology and management including remote sensing (aerial photography and satellite data), geographic information systems (GIS) and global positioning system (GPS) technologies.

NREM 3101 Forest Resource Field Studies. Lab 2. Prerequisite(s): 2134 and BOT 1404 and SOIL 2124. 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.

NREM 3102 Forest Measurements II. Lab 4. Prerequisite(s): 2103. Two-week summer presession field experience at an off-campus site. Land, tree, stand and forest level measurements, and the use and care of measurement equipment. Emphasis on statistical and tactical design of forest inventory methods, and their implementation in the field.

NREM 3103 Natural Resource Field Studies. Lab 6. Three-week summer presession field experience at an 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, political, and ethical issues. Includes visits to
private and public natural resource lands and projects.


NREM 3213 Forest Ecology. Lab 2. Prerequisite(s): BOT 1404. Study of the forest ecosystem, its structure, function, physical environment, biotic components, change over time and management implications.

NREM 3224 Silviculture. Lab 2. Prerequisite(s): 3213 or 2013. Theory and practice of controlling forest establishment, composition, structure, and growth to meet multiple objectives. Principles and techniques of natural and artificial regeneration, integrated cultural treatments, and silvicultural systems applicable in various forest cover types. Two-day field trip is required.

NREM 3323 Forest Economics and Finance. Prerequisite(s): AGEC 1114. Economic factors and analytical methods influencing decisions in forest resource management; factors affecting the production of wood products; arithmetic of interest and investment criteria; economics of non-market goods.

NREM 3343 (N) Forest Environmental Science. Overview and analysis of forests, their related environments, their associated natural resources, and their tangible and intangible values, emphasizing basic principles of scientific forest management, the use of forest resources by society, natural resource administration and policy, and current issues in forestry. No credit for NREM in Forestry options.

NREM 3502 Wildlife Law Enforcement. Prerequisite(s): Junior standing and consent of instructor. Survey of state and federal wildlife laws with emphasis on Oklahoma statutory and regulatory laws pertaining to wildlife. Lectures, guest lectures, video tape, and field exercises.

NREM 3503 Principles of Wildlife Ecology and Management. Prerequisite(s): BIOL 3034 or NREM 3213. An introduction to the biological basis of the management of wildlife habitats and populations.

NREM 3513 Principles of Conservation Biology. Prerequisite(s): 60 credit hours including BIOL 3034. Application of ecological principles to the maintenance and restoration of biological diversity at genetic, population, and community levels. (Same course as ZOOL 3513).


NREM 3613 Principles of Rangeland Management. Prerequisite(s): 2013 or 3213 or BIOL 3034. 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.

NREM 3713 Wildland Fire Ecology and Management. Prerequisite(s): 2013 or any ecology course (except AGEC 1114). Fundamentals of wildland fire ecology and chemistry and physics of fire, fuel and weather influences on fire behavior, ecological effects of fire, interaction of fire and vegetation, history of humans and fire, fire management and suppression, and prescribed fire.

NREM 4001 Issues in Global Change. Student led discussion to learn the causes and consequences of global change and practical implications for natural resource ecology and management.

NREM 4023 Restoration Ecology. Prerequisite(s): 2013 or BIOL 3034. Application of ecological theory to the practice of ecological restoration to improve populations, communities, and ecosystems degraded directly or indirectly by human activities.

NREM 4033 Ecology of Invasive Species. Prerequisite(s): BIOL 1114; and BOT 1404 and ZOOL 1604 recommended. 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.

NREM 4043* Natural Resource Administration and Policy. Prerequisite(s): Senior standing. 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.

NREM 4053* Natural Resource Recreation. Ecological, historical, social and policy basis for recreational use and management of natural resources, including an analysis of planning, management, and administrative frameworks for providing a diversity of recreational opportunities, benefits, and resource values.

NREM 4063 Ecotourism and Wilderness Management. Prerequisite(s): Applications of management approaches, concepts and issues associated with ecotourism and wilderness use for a diversity of values and benefits. Historical, social, cultural, economic, political, and ecological foundations and implications of nature-based tourism and wilderness recreation.

NREM 4093 (I) Natural Resources, People and Sustainable Development. Prerequisite(s): Consent of instructor. 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.

NREM 4213 Forest Biology. Prerequisite(s): BOT 1404. The response of trees and forest ecosystems to environmental, cultural and genetic factors. Application of physiological and ecological principles in predicting the effects of biotic and abiotic factors on tree growth and community interactions.

NREM 4323* Timber Management. Prerequisite(s): 3232 or AGEC 3213, and 3224. Regulation of forest growing stock to meet management objectives. Land and timber appraisals. Organization of the forest enterprise to meet financial objectives of management.

NREM 4333* Forest Resource Management: Planning and Decision-Making. Lab 2. Prerequisite(s): 4323. Integrated problem solving, to apply biological, quantitative, economic, political, and administrative principles in solving forest resource management problems.

NREM 4403 Wetland Ecology and Management. Lab 3. Prerequisite(s): 3213 or 3513 or BIOL 3034 or consent of instructor. 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.

NREM 4411* Water Quality Laboratory. Lab 3. Prerequisite(s): 4443, previous or concurrent. Techniques to monitor surface water for non-point source pollution. Water sampling strategies, chemical and physical analysis for nutrients, sediment and other constituents, biological analysis, quality control and interpretation of results. One required field trip.

NREM 4414* Fisheries Management. Lab 4. Prerequisite(s): BIOL 3034. Techniques and principles involved in management of fishes. Field trip required.

NREM 4424 Fisheries Techniques. Lab 4. Prerequisite(s): 4414; BIOL 3034, and ENGL 3323 strongly recommended. Research techniques and methodology in fisheries science, including sampling design, habitat assessments, sampling gears and abundance estimation, age and growth analysis, recreational surveys, data analysis, and report writing. No credit for students with credit in 5424*.

NREM 4443 Watershed Hydrology and Water Quality. Lab 2. Processes that comprise the hydrologic cycle and how land use affects those processes and the quality and quantity of water from watersheds, focusing on surface water from forest, range and agricultural watersheds. Measurement and evaluation of water quantity and quality.

NREM 4452 Pond Management. Prerequisite(s): BIOL 1114. 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*.

NREM 4453 Aquaculture. Prerequisite(s): BIOL 1114. Introduction to the principles of freshwater finfish production with an emphasis on warm water species. No credit for student having completed NREM 5453.

NREM 4463 Stream Restoration and Management. Lab 2. Prerequisite(s): 4443 or ZOOL 4313 or consent of instructor. Streams and associated riparian areas and their functions in maintaining water quantity and quality and providing aquatic habitat. Fluvial geomorphology, stream assessment and classification, riparian area functions and management, and concepts and comparison of methods of stream restoration. Field measurements of stream and riparian characteristics. Two overnight field trips required.

NREM 4464* Ornithology. Lab 2. Prerequisite(s): ZOOL 1604. Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. (Same course as ZOOL 4464*).

NREM 4473 Global Issues of Water and Ecosystem Management. Prerequisite(s): 2013 or 3213 or BIOL 3034 or equivalent with instructor consent. Principles and concepts related to integrated freshwater resource management and its provisions for ecosystem and human needs. Examination of water issues related to ecosystem management practices in geographic locations including Asia, Africa, North America and South America.

NREM 4524 Wildlife Management Techniques. Lab 4. Prerequisite(s): 3503, ENGL 3323 strongly recommended. Research techniques and methodology in wildlife science. Experimental design, wildlife population and habitat analysis, wildlife and vegetation sampling techniques, aging and sexing techniques, and report preparation and presentation.

NREM 4533 Wildlife Management for Game Species. Prerequisite(s): 3503; and BIOL 3034 or concurrent enrollment. 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.
NREM 4543 Wildlife Management for Biodiversity. Prerequisite(s): 3503; and BIOL 3034 or concurrent enrollment. 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.

NREM 4613 Rangeland Resource Planning. Inventory of ranch resources, survey and evaluation of ranch practices, and economic analysis. Development of a comprehensive rangeland management plan. Managing rangeland and ranch resources in a social context. Written and oral reports. Field trips required. (Same course as ANSI 4973)

NREM 4783 Prescribed Fire. Lab 3. Prerequisite(s): 3613. 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, conditions, and post firing mop up. Field trips required.

NREM 4793 Advanced Prescribed Fire. Lab 3. Prerequisite(s): 4783 or consent of instructor. Preparing fire plans and executing prescribed fires as the fireboss. No credit for both NREM 4793 and NREM 5793.

NREM 4960 Undergraduate Internship. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Supervised internship with an approved natural resource business, government agency, or nonprofit environmental 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.

NREM 4980 Undergraduate Research Problems. 1-3 credits, max 3 Lab 1-3. Prerequisite(s): Upper-Division standing, GPA of 2.50 or better and consent of instructor. Participation in faculty research or execution of a research problem formulated by the student.


NREM 5000* Master's Thesis or Report. 1-6 credits, max 6 (Thesis), 2 (Report). Independent research planned, conducted and reported in consultation with a major professor.

NREM 5020* Graduate Seminar. 1 credit, max 10. Special topics in Natural Resource Ecology and Management; philosophy, methods and interpretation of research.

NREM 5030* Special Problems in Natural Resource Ecology and Management. 1-9 credits, max 9. Special problems in areas of natural resource ecology and management other than those covered in the student's thesis research.

NREM 5033* Ecology of Invasive Species. 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/plans designed to limit the spread of invasives. No credit for students having completed NREM 4033.

NREM 5043* Ecology and Evolution of Symbiosis. Ecology and evolution of symbiotic associations and mutualisms in ecosystems. Theory, current questions, and general patterns involving biotic interactions of plants and animals with other plants, animals, or microbes.

NREM 5053* Global Ecology and Biogeochemistry. Examines key nutrient pools and transformations in the atmosphere, soils, and hydrosphere, with an emphasis on the role of communities 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.

NREM 5063* Production Ecology. Prerequisite(s): 3213 or BIOL 3034. Mechanisms driving the growth and productivity of terrestrial ecosystems in response to resource availability, genetics, disturbance, and climate. Factors affecting 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.

NREM 5073* Ecological Modeling and Synthesis. Prerequisite(s): STAT 5013 or equivalent. Ecological modeling approaches including deterministic, stochastic, state and transition, population matrices, and Bayesian networks. Modeling philosophy, interpretation, and using models for synthesis. Basics of model building, system equations, model evaluation, error budgets, and developing models for ecological realism, and scaling. Examination of models impacting environmental policy, carbon sequestration, population viability analysis, forest growth and sustainability.

NREM 5083* Applied Landscape Ecology. 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.

NREM 5093* Community Natural Resource Management. Prerequisite(s): Graduate standing. Theoretical frameworks, methodological investigation and applied practices to enhance the ability of community development professionals to work with their communities to plan, develop, and monitor the development of natural resources with multiple functions. Course available online only through distance education.

NREM 5130* Special Topics in Forestry. 1-3 credits, max 9. Advanced study on special topics in forestry.

NREM 5133* Advanced Topics in Forest Biometrics. Prerequisite(s): 3063 or equivalent: STAT 5013 concurrently or equivalent. Quantitative description of forest populations and methods for modeling forest growth and development. Sampling techniques for forest populations.

NREM 5193* Spatial and Non-Spatial Database Management. Prerequisite(s): One course in statistics and programming experience. 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.

NREM 5403* Advanced Wetland Ecology. Prerequisite(s): A course in aquatic ecology or wetland management recommended. 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 ZOOL 5403)

NREM 5424* Fisheries Techniques. Lab 4. Prerequisite(s): 4414, BIOL 3034, and ENGL 3323 strongly recommended. Research techniques and methodology in fishery 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 4424.

NREM 5433* Fisheries Science. Prerequisite(s): 4414 or equivalent or consent of instructor. Principles of fisheries science as they relate to fish and aquatic biota, their habitats, and the humans who utilize them.

NREM 5443* Watershed Hydrology and Water Quality. Lab 2. 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 4443.

NREM 5452* Pond Management. Prerequisite(s): BIOL 1114. Principles and problems 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.

NREM 5453* Aquaculture. Prerequisite(s): BIOL 1114. Introduction to the principles of freshwater fish production with an emphasis on warm water species. No credit for student having completed NREM 4453.

NREM 5463* Stream Restoration and Management. Lab 2. Streams and associated riparian areas and their functions in maintaining water quantity and quality and providing aquatic habitat. Fluvial geomorphology, stream assessment and classification, riparian area functions and management, and comparison of methods of stream restoration. Field measurements of stream and riparian characteristics. Two overnight field trips required. No credit for students having completed 4463.

NREM 5473* Stream Ecology. Prerequisite(s): Course in ecology strongly recommended. 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. No credit for students having completed 4463.

NREM 5483* Ecosystem Hydrology. Prerequisite(s): 3213 or BIOL 3034 or equivalent with instructor consent. Concepts, framework and challenges in ecoregionology. 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.

NREM 5493* Social Dimensions in Aquatic Ecology. Prerequisite(s): consent of instructor. Role of humans as implementers of policy, as users of resources, and as conservationists in aquatic systems.

NREM 5523* Population Ecology. Lab 2.5. Prerequisite(s): BIOL 3034, MATH 1513. 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 ZOOL 5523)

NREM 5563* Forest Wildlife Ecology. Prerequisite(s): Course in ecology strongly recommended. Vertebrate species diversity in the world’s woodland and forest ecosystems. Changes imposed by land clearing and development, and the effects upon wildlife diversity and populations. Options for wildlife conservation, from strict nature reserves to integrating wildlife habitat management into land use practices. Field trip required.

NREM 5573* Grassland and Desert Wildlife Ecology. Prerequisite(s): Course in ecology strongly recommended. Ecology of grasslands and deserts with emphasis on vertebrate species diversity, adaptations to semi-arid and arid ecosystems, and management problems associated with such habitats.

NREM 5583* Wetland Wildlife Ecology. Prerequisite(s): A course in wildlife ecology or wetland management recommended. Ecology and management
of wetland dependent wildlife species with an emphasis on the autecology, adaptations for inhabiting wetland systems, and management problems associated with these taxa.

NREM 5650* Special Topics in Rangeland Science. 2-4 credits, max 4. Prerequisite(s): Consent of instructor. Selected topics in rangeland research methods or other rangeland topics.

NREM 5673* Rangeland Resources Watershed Management. 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.

NREM 5682* Grassland Plant Identification. Prerequisite(s): Consent of instructor. 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.

NREM 5692* Grassland Monitoring and Assessment. 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.

NREM 5693* Principles of Forage Quality and Evaluation for Ruminants. Prerequisite(s): Consent of instructor. 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.

NREM 5713* Grassland Fire Ecology. Ecological effects of fire on grassland ecosystems. Examination of the history of fire, societal use of fire, fire behavior in relation to fuel, weather, and conducting and safety of prescribed burns. Course available online only through distance education.

NREM 5723* Ecology of Fire Dependent Ecosystems. Prerequisite(s): Any ecology course. 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.

NREM 5783* Prescribed Fire. 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.

NREM 5793* Advanced Prescribed Fire. Lab 3. Prerequisite(s): 4783 or consent of instructor. Preparing fire plans and executing prescribed fires as the fireboss. No credit for both 4793 and 5793.

NREM 6000* Doctoral Dissertation. 1-15 credits, max 45. Independent research planned, conducted and reported in consultation with major professor.

NREM 6010* Advanced Topics and Conference. 1-6 credits, max 6. Prerequisite(s): MS degree. Supervised study of advanced topics. A reading and conference course designed to acquaint the advanced student with fields not covered in other courses.

Natural Science (NATS)

NATS 5050* Report. 1-2 credits, max 2. Prerequisite(s): Enrollment in program leading to MS in natural science. Guidance in reading and research required for MS in natural science degree.

NATS 5990* Topics in Natural and Applied Sciences. 1-3 credits, max 9. Prerequisite(s): Graduate standing. Special topics in the natural and applied sciences for students interested in topics not normally covered in existing course work.

Nutritional Sciences (NSCI)

NSCI 2111 Professional Careers in Nutritional Sciences. Prerequisite(s): For students interested in Allied Health, Community Nutrition or Nutrition and Exercise or consent of instructor. Career opportunities in health professions. Roles and responsibilities of health care professionals. Routes to professional memberships and current issues in professionalism.

NSCI 2114 (N) Principles of Human Nutrition. Functions of the nutrients in human life processes. Nutritional relationship to health as a basis for food choices. Open to all University students.

NSCI 2211 Professional Careers in Dietetics. Prerequisite(s): For students interested in Dietetics and Dietetics and Exercise options or consent of instructor. Career opportunities in Dietetics. Roles and responsibilities of Dietitians. Routes to professional memberships and current issues in professionalism.

NSCI 2850 Special Topics in Nutritional Sciences. 1-3 credits, max 4. Study of specific consumer education issues or topics in nutritional sciences.

NSCI 3011 Nutrition and Evidence-based Practice I. Prerequisite(s): 2114 and STAT 2013 (or equivalent) or concurrent. Understanding of human nutrition and the development of evidence-based practice recommendations for healthy individuals. Basic research methods and interpretation. Ethics in research.

NSCI 3021 Nutrition and Evidence-based Practice II. Prerequisite(s): 3011 and ZOOL 3024 or concurrent. Understanding the 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 nutrition research from ZOOL 3024 and NSCI 3011. Ethics in research.

NSCI 3133 Science of Food Preparation. Lab 3. Prerequisite(s): HRAD 1114, NSCI 2114, CHEM 3015. Scientific principles underlying functions of food ingredients, recipe/menu modification, diet management for disease states and food safety.

NSCI 3223 Nutrition Across the Life Span. Prerequisite(s): 2114 or equivalent. Nutritional needs and dietary concerns of individuals from conception through old age.

NSCI 3440 Nutritional Sciences Pre-Professional Experience. 1-3 credits, max 3. Prerequisite(s): HS 1112 or 3112 (or concurrent). Student arranged, instructor approved, job shadowing, work or volunteer experience in professional settings related to the Nutritional Sciences options. Forty hours of experience required per credit hour.


NSCI 3813 Nutrition Assessment and Counseling Skills. Lab 2. Prerequisite(s): 2114 and 3223 and HDFS 2113 and PSYC 1113; or consent of instructor. Theory and practice of counseling and interning skills as applied to nutrition counseling. Collection and interpretation of anthropometric, biochemical and dietary data necessary to determine nutritional status.

NSCI 3991 Dietetics Career Experience. Observational career experience in various settings with practicing registered dietitians.

NSCI 4013* Experimental Foods. Lab 3. Prerequisite(s): 3133 or consent of instructor. Investigations in physical, chemical and sensory, and functional properties of foods and their ingredients. Research project applying food science and nutrition principles to product development.

NSCI 4021 Nutrition and Evidence-based Practice III. Prerequisite(s): 3011 and 3021. 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.

NSCI 4023 Nutrition in the Pathophysiology of Chronic Disease. Prerequisite(s): 2114, 3223 and ZOOL 3024. Analysis of the role of specific nutrients in health maintenance and disease prevention. Communication of nutrition information to the public.

NSCI 4111 Professional Preparation for Careers in Dietetics. Prerequisite(s): Junior or senior standing or consent of instructor. Dietetic profession current issues, career options and alternative careers. Professional requirements for becoming a registered dietitian and for alternative career paths. Types of supervised practice, graduate or other programs and assistance in the application process. Graded pass/fail.

NSCI 4123 Human Nutrition and Metabolism I. Prerequisite(s): NSCI 2114 and CHEM 3015 or 3053 and ZOOL 3204 and senior classification or consent of instructor. Examination of 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 5303*.

NSCI 4133 Nutrition for Exercise and Sport. Prerequisite(s): HHP 3114, NSCI 4323 and BIOC 3653 or consent of instructor. Application of principles of nutrient metabolism as they relate to physical activity, sport and health.

NSCI 4143 Human Nutrition and Metabolism II. Prerequisite(s): NSCI 4123 or consent of instructor. 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*.

NSCI 4323 Human Nutrition and Metabolism. Prerequisite(s): ZOOL 3024, BIOC 3653 or concurrent and 2114 or consent of instructor. Digestion, absorption and metabolism of nutrients; functions and health implications in the human organism.

NSCI 4331 Quantity Food Production Practicum. Prerequisite(s): 2114, HRAD 1114, 2011, 3213 or MGMT 3013. Observation and practice in real-life-quantity food production settings. Students will need immunizations, TB tests, and background checks completed before the semester begins.

NSCI 4373 Principles of Nutrition Education. Prerequisite(s): 2114, 3223 or consent of instructor. Analysis of various methods, strategies, theories, resources and evaluation methods for nutrition education. Principles of effective nutrition counseling. Overview of community nutrition programs.
NSCI 4573 Management in Dietetics. Prerequisite(s): ACCT 2103 or HRAD 2152 and HRAD 2282; and HRAD 3213 or MGMT 3013; or consent of instructor. Management practices in the field of dietetics including program, clinical and food systems management.

NSCI 4643 Capstone for Nutritional Sciences. Prerequisite(s): Senior standing in NSCI or consent of instructor. Integration of the body of knowledge in nutritional sciences. Examination of the research basis for defining and solving critical issues. Oral and written reports.

NSCI 4733 Community Nutrition. Prerequisite(s): 2114 and 3223 or consent of instructor. Application of nutrition, education and communication principles to community nutrition programs and services. Field work required.

NSCI 4850 Special Unit Studies in Nutritional Sciences. 1-3 credits, max 6. Special units of study in nutritional sciences.

NSCI 4854 Medical Nutrition Therapy I. Prerequisite(s): 3223, 3813, 4323 or concurrent enrollment. Physiological and metabolic bases for dietary modifications in disease states.

NSCI 4864 Medical Nutrition Therapy II. Prerequisite(s): 4854. A continuation of 4854, Medical Nutrition Therapy I.

NSCI 4900 Honors Creative Component. 1-3 credits, max 3. Prerequisite(s): College of Human Sciences Honors Program participation, senior standing, Guided creative component for students completing requirements for College Honors in the 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.

NSCI 5000 Master's Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of adviser. Individual research and thesis that will fulfill the requirements for the master’s degree.

NSCI 5011 Special Topics in Nutritional Sciences. Prerequisite(s): NSCI graduate standing. Orientation to graduate study and research in nutritional sciences.

NSCI 5012 Public Policy Development in Food, Nutrition and Related Programs. Rationale underlying governmental programs in food and nutrition and human sciences and assessment of the effectiveness of the programs.

NSCI 5013 Cost Control in Food Service Systems. Prerequisite(s): Admission to Great Plains IDEA online MS in Dietetics. 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.

NSCI 5023 Advanced Nutrition in the Pathophysiology of Chronic Disease. Prerequisite(s): BIOC 3653 and NSCI 4323/5323 or equivalent or consent of instructor. In-depth analysis of the role of specific nutrients in health maintenance and disease prevention.

NSCI 5033 Macronutrients in Human Nutrition. Prerequisite(s): BIOC 3653 and NSCI 4323/5323 or equivalent or consent of instructor. Characteristics, biological roles, transport and metabolism of macronutrients at the cellular and tissue levels.

NSCI 5043 Micronutrients in Human Nutrition. Prerequisite(s): 5033 or consent of instructor. In-depth study of vitamins and minerals and their interrelationships in metabolism.

NSCI 5053 Functional Foods for Chronic Disease Prevention. Prerequisite(s): Admission to Great Plains IDEA MS in Dietetics or consent of instructor. 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.

NSCI 5103 Grant Writing for the Professional. Prerequisite(s): Admission to the Great Plains IDEA online MS in Dietetics or consent of instructor. Grant proposal preparation experience including written critique of proposals and budget planning. Designed for the working professional. Web-based instruction.

NSCI 5123 Research Methods in Nutritional Sciences. Basic components of the research process and application of research methods to nutritional sciences.

NSCI 5133 Advanced Nutrition for Exercise and Sport. Prerequisite(s): Intro nutrition and biochemistry or consent of instructor. Advanced study of nutrition and metabolism relating to physical activity, sports and health.

NSCI 5203 Nutrition in Wellness. Prerequisite(s): Admission to the Great Plains IDEA online MS in Dietetics or consent of instructor. Wellness promotion through nutrition. Nutritional risk and protective factors will be examined as they relate to public health and individual nutrition. Web-based instruction.

NSCI 5210 Contemporary Issues in Food Service. 3-9 credits, max 9. Prerequisite(s): Admission to the Great Plains IDEA online MS in Dietetics program or consent of instructor. Contemporary issues in food service in dietetics; formulation of innovative solutions and processes to enhance effectiveness in the workplace.

NSCI 5213 Entrepreneurship in Food Service and Dietetics. Prerequisite(s): Admission to Great Plains IDEA online MS in Dietetics. An overview of entrepreneurship, characteristics of entrepreneurs and small business development within the context of food service and dietetics. Web-based instruction.

NSCI 5223 Advanced Nutrition Across the Life Span. Prerequisite(s): Admission to the Great Plains IDEA online MS in Dietetics. Examination of the influence of normal physiological stresses on nutritional needs throughout the life span. Web-based instruction.

NSCI 5240 Contemporary Issues in Nutrition. 3-9 credits, max 9. Prerequisite(s): Enrolled in Great Plains IDEA online MS in Dietetics. Contemporary issues in nutrition. Web-based instruction.

NSCI 5303 Human Nutrition and Metabolism I. Prerequisite(s): Introductory nutrition, organic chemistry, physiology or consent of instructor. 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.

NSCI 5313 Dietary and Herbal Supplements. Prerequisite(s): Human Physiology or consent of instructor. 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. Web-based instruction.


NSCI 5333 Human Nutrition and Metabolism. Prerequisite(s): Intro nutrition, organic chemistry, biochemistry and physiology. Digestion, absorption and metabolism of nutrients; functions and health implications in the human organism.

NSCI 5353 Human Nutrition and Metabolism II. Prerequisite(s): Introductory nutrition, organic chemistry, biochemistry and physiology. 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.

NSCI 5363 Maternal and Infant Nutrition. Prerequisite(s): 2114 or equivalent. Nutritional needs and dietary concerns during pregnancy, lactation and the first year of life. Implications for nutrition intervention, education and policy.

NSCI 5373 Childhood Nutrition. Prerequisite(s): 2114 or consent of instructor. Normal nutritional needs of children, preschool through grade 12. Dietary implications for child care programs, school food service and parent education.

NSCI 5393 Nutrition and Aging. Prerequisite(s): 2114 or equivalent. Nutritional needs, and dietary concerns of the elderly. Implications for food and nutrition programs, policies, research and education.

NSCI 5403 Contemporary Issues in Dietetics Practice. Prerequisite(s): Acceptance as a dietetic intern. Contemporary issues in the practice of dietetics; innovative solutions and processes to enhance effectiveness in the workplace.

NSCI 5412 Dietetic Internship Management Practicum. Prerequisite(s): Acceptance as a dietetic intern. Supervised learning experiences in approved food service management for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis.

NSCI 5422 Dietetic Internship Clinical Practicum. Prerequisite(s): Acceptance as a dietetic intern. Supervised learning experiences in approved clinical for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis.

NSCI 5423 Food Writing for Professionals. Prerequisite(s): Admission to Great Plains IDEA MS in Dietetics or consent of instructor. Writing skills needed by the food professional in order to communicate effectively in writing about food and food-related topics. Includes hands-on projects in research and writing for various audiences and types of publications. Web-based instruction.

NSCI 5432 Dietetic Internship Community Nutrition. Prerequisite(s): Acceptance as a dietetic intern. Supervised learning experiences in approved community nutrition settings for the achievement of performance requirements for entry level dietitians. Graded on a pass-fail basis.

NSCI 5453 Nutrition and Health Disparities. Prerequisite(s): Admission to Great Plains IDEA MS in Dietetics or consent of instructor. 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. Web-based instruction.

NSCI 5473 Pediatric Clinical Nutrition. Prerequisite(s): Admission to Great Plains IDEA MS in Dietetics or consent of instructor. Obesity in the population from childhood to the adult age groups. Examination of the impact of obesity conditions on disease development throughout the life span. Critical analysis of interventions used in the behavioral and clinical management of
overweight and obese individuals in community and clinical settings. Web-based instruction.

**NSCI 5553** Global Nutrition and Food Security. 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.

**NSCI 5653** Nutrition Assessment. Prerequisite(s): 3223, 4323, or equivalent. Dietary, physical, and biochemical assessment techniques and their application to patient or client nutritional status assessment in health care systems.

**NSCI 5613** Advanced Nutrition Education and Counseling. Prerequisite(s): Consent of instructor. Analysis of various learning and behavior change theories and application in nutrition education.

**NSCI 5643** Advanced Medical Nutrition Therapy. Prerequisite(s): Admission to dietetic internship or consent of instructor. Physiological and metabolic bases for nutritional support in disease.

**NSCI 5673** Human Resources. Prerequisite(s): Admission to Great Plains IDEA online MS in Dietscics or consent of instructor. Future role, focus, practices and governance of human resources in health care.

**NSCI 5683** Fundamentals of Leadership in Dietscics. Prerequisite(s): Admission to Great Plains IDEA online MS in Dietscics or consent of instructor. Study of the key issues in the theory, research, and application of leadership within the context of dietscics practices. 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.

**NSCI 5713** Advanced Community Nutrition. Prerequisite(s): 2114, 3223 and 4733 or equivalent. Consent of instructor. Current issues in community nutrition. Use of emphasis on program development and evaluation of community nutrition programs. Analysis of the impact of economic, political, legislative and cultural diversity factors in the field of community nutrition.

**NSCI 5743** Advanced Laboratory Techniques in Nutritional Sciences. Prerequisite(s): A course in biochemistry and a course in statistics. 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.

**NSCI 5753** Health Care Administration. Prerequisite(s): Consent of instructor. 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.

**NSCI 5783** Food Technology. Prerequisite(s): Consent of instructor; graduate standing. Principles and pertinent issues in food technology, including concepts, experimental and product design, process development, evaluation, packaging, and marketing. Web-based instruction.

**NSCI 5843** Non-Thesis Creative Component. Prerequisite(s): Final semester and consent of instructor. A guided course serving as the final requirement for graduate students in the Master of Science Degree program, non-thesis option. Not recommended for students interested in pursuing a PhD.

**NSCI 5863** Sensory Evaluation of Food. Lab 2. Prerequisite(s): 4013 or consent of instructor. Basic principles of physiology and psychology as they pertain to sensory evaluation, importance of sensory evaluation to the food industries, organization of a sensory program or facility, test strategies, design of experiments and testing instruments, discrimination testing, descriptive analysis, and affective testing.

**NSCI 5870** Problems in Nutritional Sciences. 1-4 credits, max 6. Analysis of emerging problems and trends in nutritional sciences.

**NSCI 5960** Master’s Seminar in Nutritional Sciences. 1 credit, max 2. Prerequisite(s): NSCI graduate students. Individual and group seminars on current issues and research in nutritional sciences.

**NSCI 5963** Environmental Scanning and Analysis. Prerequisite(s): Admission to Great Plains IDEA online MS in Dietscics or consent of instructor. Discussion of changes in the economic, social, ethical, political, legal, technological, and ecological environments in which dietscicians practice. Implications of these changes for education, practice and research within the field with particular emphasis on the healthcare industry. Web-based instruction.

**NSCI 6000** Doctoral Dissertation. 1-12 credits, max 45. Prerequisite(s): Consent of major professor.

**NSCI 6033** Phytochemicals. Prerequisite(s): 4323/5333 or equivalent or consent of instructor. Identification of basic structural, functional and metabolic properties of phytochemicals (substances in plants that have been linked to reducing chronic disease). Special attention placed on health benefits and chronic disease risk reduction.

**NSCI 6223** Nutrition in Immunology. Prerequisite(s): 5043 or consent of instructor. Principles and issues related to nutrition and immunology. Impact of nutrients and nutritional status on integrity of the immune system.

**NSCI 6243** Nutrition and Cancer. Examination of basic cancer biology and methodology used to study nutrition and cancer relationships. The role of

**NSCI 6453** Advanced Research Methods in Nutritional Sciences. Components of the research process for students who have completed an advanced degree. Development, application and interpretation of research methodology.


**NSCI 6870** Independent Study in Nutritional Sciences. 1-3 credits, max 6. In-depth analysis of research issues in nutritional sciences.

**NSCI 6960** Seminar: Emerging Topics in Nutrition. 1 credit, max 4. Critical evaluation of research in nutritional sciences. Individual and group seminars on selected topics.

### Occupational Education (OCED)

**OCED 5000** Thesis or Report. 2-10 credits, max 10. 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.

**OCED 5010** Seminar. 1-3 credits, max 6. Graduate student seminars focusing on current and critical issues and common problems relevant to occupational education.

**OCED 5113** Principles of Leadership in Workforce Education. 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.

**OCED 5123** Evaluation of Occupational and Workforce Education Programs and Instruction. Principles of evaluation applied to instructional programs in occupational and workforce education. Techniques and strategies for designing, conducting, reporting, and applying evaluations of programs in occupational/technical schools, government agencies, and public or private sector workplaces.

**OCED 5133** Internationalism, Globalization and Occupational Education. Prerequisite(s): Graduate standing. Preparing a globally competitive workforce. Analysis of comparative international occupational/technical education systems, and critical issues in internationalism and globalization in workforce education development.

**OCED 5153** Curriculum Planning in Occupational Education. Principles and procedures for curriculum planning, development and management in occupational and adult education with analyses of current trends and practices and their implications for program equity.

**OCED 5223** Program Planning for Occupational and Technical Educators. Approaches to program planning designed around continuous improvement methods for problem solving, flow charting, budgeting, gaining program support, and Lifelong Education Program Planning (LEEP) model.

**OCED 5232** Teaching Related Information. Selection of job-related topics common to most occupational programs; procedures for incorporating those topics into the regular curriculum.

**OCED 5233** Advanced Instructional Procedures in Trade and Industrial Education. Advanced methods and procedures for effective teaching and learning in Occupational 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.

**OCED 5313** History, Principles and Organization of Workforce Education. Prerequisite(s): Graduate standing. History, underlying principles and evolving social, political and economic forces acting upon workforce education. In-depth with critical analysis of educational programs and service areas and resulting implications for leadership development and program responsibility.

**OCED 5333** Administration and Supervision of Workforce Education Programs. Understanding and critically analyzing the quality of workforce education courses and the value they hold.

**OCED 5340** Special Problems in Occupational Education. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed independent study of special topics involving assigned readings, library research, field work or a combination of these.

**OCED 5423** Individualized Competency-Based Instruction and Customized Training. Principles, techniques, and technologies for creating and delivering individualized competency-based instruction and customized workplace training. Includes LAD systems and customizing for industry.

**OCED 5443** Interpreting Research in Occupational Education. Seminar on the methods of research, review, synthesis and interpretation with application.
to particular fields of occupational and adult education.


OCED 5673* Principles of Distance Learning in Occupational Education. Prerequisite(s): Graduate student standing. Issues, methods, tools and techniques of facilitating learning at a distance. Development of skills in designing and delivering instruction via current synchronous and asynchronous technologies such as video conferencing and Internet, fostering analysis of current research in distance learning, and encouraging real-world applications of acquired skills and knowledge.

OCED 5720* Workshop. 1-3 credits, max. 10. Professional workshops of various topics and lengths. Each workshop designed to meet unique or special needs of individuals concerned with adult education and human resource development.

OCED 5880* Internship in Occupational Education. 3-6 credits, max. 6. Prerequisite(s): Consent of instructor. Supervised experience working in business, industry, human service, or education settings.

OCED 5910* Developing and Analyzing Teaching Content. 1-3 credits, max. 6. Provides opportunity for experienced teachers to incorporate the latest technological advances into their course of study.

OCED 6000* Doctoral Dissertation. 1-25 credits, max. 25. Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation.

OCED 6103* Philosophy of Occupational Education. Alternative perspectives for developing a philosophic position in occupational and adult education.

OCED 6110* Graduate Reading in Occupational Education. 1-6 credits, max. 6. Prerequisite(s): Graduate standing and consent of supervising professor. Supervised readings of significant literature not included in regularly scheduled courses.

OCED 6113* Supervision of Workforce Education Instruction. Theoretical and practical applications of current instructional supervision in a 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.

OCED 6233* Managing Knowledge in Learning Organizations. 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 outcomes.

OCED 6333* Strategic Planning in Workplace Learning and Organizational Performance. Theory, trends, and competency model development performance areas.

OCED 6343* Financing Occupational Education. Prerequisite(s): Graduate standing. Development of conceptual and legal bases for funding public occupational education programs. Sources of funds, distribution strategies, local, state and federal accountability requirements, and fraud and abuse funds.


OCED 6871* Doctoral Seminar: Level 1. Orientation to doctoral program in OCED. May be taken prior to program application; required of all applicants.

OCED 6880* Doctoral Internship in Occupational Education. 1-8 credits, max. 8. Prerequisite(s): Consent of instructor. Directed field experiences related to the participant’s area of concentration. Practice and testing ideas, theories and concepts learned in graduate study.


Philosophy (PHIL)

PHIL 1013 (H) Philosophical Classics. Basic works by great thinkers, including Plato, Descartes and Hume.

PHIL 1113 (H) Introduction to Philosophy. Selected philosophical problems: the nature of reality, knowledge, value, social ideals and religion.

PHIL 1213 (H) Philosophies of Life. Introductory ethics and social philosophy. Moral decision-making, the good life, social values, freedom, and responsibility.

PHIL 1315 (A) Logic and Critical Thinking. Formal and informal reasoning, common fallacies and language functions, patterns of explanation. Practical criticism and development of everyday arguments.

PHIL 3003 (A) Symbolic Logic. Propositional logic and predicate logic with identity. Formal analysis of language.
PHIL 4113 (H) Philosophy of Art and Literature. 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.

PHIL 4133 (H) Philosophy of Mind. Problems in philosophical psychology, mind and body, freedom and determinism, personal identity and survival, self-knowledge, analysis of mental concepts.

PHIL 4453 (H) Philosophy in Literature. Selected literary works examined for philosophical ideas and themes. Attention to the interrelation of form and content. Thematic approach.

PHIL 4543* Philosophy of Language. Prerequisite(s): 1313 or 3003. 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.

PHIL 4553* Contemporary Ethical Theory. Debate in ethical theory since Moore. The naturalistic fallacy, intuitionism, and value realism.

PHIL 4713 (H) Philosophy of Science. Philosophical issues related to science and its role in society. Topics include science and common sense, laws and theories, causality, nature of scientific progress.

PHIL 4733 (H) Philosophy of Biology. Selected philosophical topics, such as Darwinism and other theories of evolution, physical reductionism, and issues of genetic engineering.

PHIL 4943* Indian Philosophy. Prerequisite(s): 3943 or consent of instructor. 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.

PHIL 4953* East Asian Philosophy. Prerequisite(s): 3943 or consent of instructor. 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.

PHIL 4983* Metaphysics and Epistemology. Prerequisite(s): 12 credit hours of philosophy. The study of the fundamental nature of reality and human knowledge of it.

PHIL 4990 Special Studies in Philosophy. 1-3 credits, max 10. Selected philosophical topics or works.

PHIL 4991* Contemporary Philosophy Research. Prerequisite(s): Upper-division standing, at least 12 hours in philosophy completed. Study of leading edge research in philosophy through presentation and discussion of current philosophy journal articles with faculty.

PHIL 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

PHIL 5000* Master's Thesis in Philosophy. 1-6 credits, max 6. Supervised individual work on a thesis for a master's degree.

PHIL 5203* Proseminar. Introduction to professional oral and written communication in philosophy.

PHIL 5210* Seminar on a Major Philosopher. 3 credits, max 9. Prerequisite(s): Three courses in philosophy. The writings of a major philosopher and related material.

PHIL 5303* Topics in Philosophy of Religion. 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.

PHIL 5310* Seminar on a Field of Philosophy. 3 credits, max 9. Prerequisite(s): Three courses in philosophy. Selected topics in one field of philosophy.

PHIL 5313* Topics in Social Political Thought. Consideration of a single topic (e.g. justice), focusing on the role of the state in the social and political order (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).

PHIL 5323* Seminar in Ancient Philosophy. Prerequisite(s): 3113. 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.

PHIL 5333* Seminar in Modern Philosophy. Prerequisite(s): 3213 or 3313. 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.

PHIL 5343* Seminar in East and West Comparative Philosophy. Prerequisite(s): 3943. 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.

PHIL 5353* Seminar in Contemporary Continental Philosophy. Prerequisite(s): 3213 or 3313. 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 Foucault.

PHIL 5363* Topics in Metaphysics. Prerequisite(s): 3113 or 3213 or 4983. 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.

PHIL 5373* Contemporary Epistemology. Prerequisite(s): 3213 or 3113 or 4983. 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.

PHIL 5383* Seminar in American Philosophy. Selected philosophical schools or traditions influential in American thought, such as transcendentalism, pragmatism, or naturalism.

PHIL 5393* German Idealism. Prerequisite(s): 3113 or 3213. Selected major works of post-Kantian German Philosophy, such as the nature of a philosophical system, identity, and self-consciousness.

PHIL 5423* Topics in Ethical Theory. Prerequisite(s): 3413. Central problems in ethical theory, such as ethical realism/anti-realism, motivational internalism/externalism, and problems within specific normative systems.

PHIL 5433* Topics in Philosophy of Law. Prerequisite(s): 3843. In-depth examination of selected topics in philosophy of law, such as punishment, jurisprudence, and principles of legislation. Seminar format.

PHIL 5443* Topics in Biomedical Ethics. Prerequisite(s): 3833. 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.

PHIL 5510* Research Topics in Philosophy. 1-3 credits, max 10. Prerequisite(s): Consent of graduate advisor or department head. Individual research on topics related to the student's interests and/or Thesis topic(s).

PHIL 5610* Philosophical Issues in Education. 2-3 credits, max 3. Contemporary issues in educational theory and practice. The relation of education to political thought, religion, public law and culture.

PHIL 5910* Research Problems in Philosophy. 1-3 credits, max 10. Prerequisite(s): Consent of instructor and department head. Individual or group research on specific philosophical problems.

PHYS 1001 Frontiers of Physics. Student and faculty discussions of current research topics in physics as presented in popular journals. Graded on pass-fail basis.

PHYS 1014 (N) Descriptive Physics. 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.

PHYS 1114 (L,N) General Physics. Lab 2. Prerequisite(s): MATH 1613 or MATH 1715 with a grade of "C" or better, or an acceptable placement score (see placement.okstate.edu). Algebra-based introductory course covering the basic concepts of physics appropriate for a range of science and preprofessional majors. Practical examples of the role of physics in other disciplines. Newtonian mechanics, fluids, heat, thermodynamics, waves, sound.

PHYS 1214 (L,N) General Physics. Lab 2. Prerequisite(s): 1114 or with a "C" or better. Continuation of 1114. Electricity, magnetism, optics, quantum physics, atomic and nuclear structure.

PHYS 1313 (L,N) Inquiry-Based Physics. Lab. Properties of matter, motion, light and color, electrical circuits and energy conservation. Recommended for elementary education majors as model course to learn and teach science.

PHYS 2014 (L,N) General Physics. Lab 2. Prerequisite(s): MATH 2144 or concurrent enrollment. Calculus-based introductory course for science, math and engineering majors. Mechanics, waves, heat, and thermodynamics.

PHYS 2020 Special Topics in Physics. Topics of current interest in physics appropriate for the lower-division level, such as the role of physics in modern society.

PHYS 2114 (L,N) General Physics. Lab 2. Prerequisite(s): 2014 or 2314 with a "C" or better. Continuation of 2114. Electricity, magnetism, and optics.


PHYS 2414 (L,N) General Physics for Science Majors II. Lab 2. Prerequisite(s): 2114 or 2314. Continuation of 2114. Electrodynamics, electric fields and forces, currents, circuits, waves, physical optics, modern physics, nuclear physics, and thermodynamics.
or concurrent enrollment. Mechanics of particles, systems of particles and rigid bodies.

PHYS 3113* Heat. Prerequisite(s): 2114 or equivalent and MATH 2163 or concurrent enrollment. Thermometry, heat transfer, elementary theory of specific heat and the three laws of thermodynamics.

PHYS 3213* Optics. Prerequisite(s): 2114 or 2414 and 3513, or consent of the instructor. Geometrical optics; interference, diffraction, dispersion, absorption, and polarization of light.

PHYS 3313 Introduction to Semiconductor Device Physics. Prerequisite(s): 2114 or equivalent. 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 ECE 3903)

PHYS 3323 Modern Laboratory Methods I Lab 6. Prerequisite(s): 2014, 2114. Introduction to electronic and measurement techniques and applications in experimental control, data collection and laboratory computation. Experiments on test instruments, integrated electronics, signal processing, computer interfacing, and data acquisition.

PHYS 3513* Mathematical Physics. Prerequisite(s): 1214, 2114 or 2414 and MATH 2163. Physical applications of vectors, vector calculus and differential equations. Fourier analysis. Orbit geometry, coordinate systems and transformation of coordinates. Matrices and determinants.

PHYS 3623 Modern Laboratory Methods II Lab 6. Prerequisite(s): 2014, 2114 or 2414 in addition 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.

PHYS 3713 Modern Physics I. Prerequisite(s): 2114. Atomic physics, special theory of relativity, introduction to solid state physics, many-body systems. Some knowledge of either C, FORTRAN, Pascal, or BASIC required.

PHYS 4003* Computer Simulation Methods in Physics. Prerequisite(s): 3013, 3113, 3313 or consent of instructor. 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.

PHYS 4010* Special Problems. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Individual laboratory work of an advanced nature.

PHYS 4113* Electricity and Magnetism. Prerequisite(s): 2114 and MATH 2233, or their equivalents. Electrostatic fields, magnetic fields of steady currents, induced EMF, Maxwell's equations and introduction to electromagnetic wave theory. Vector analysis used.

PHYS 4213* Introduction to Nuclear and Particle Physics. Prerequisite(s): 2114 or 3713 or consent of instructor. 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.

PHYS 4263 Introduction to Solid State Physics. Prerequisite(s): 3013, 3713 or consent of instructor. Structure, specific heat, dielectric properties, lattice vibrations, free electron theory, bond structure, and superconductivity of solids.

PHYS 4313* Molecular Biophysics. Prerequisite(s): 1214 or 2114. 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.

PHYS 4413* Modern Physics II. Prerequisite(s): 3013 and 3713. Atomic and X-ray spectra; one-dimensional Schroedinger equation; nuclear structure; introduction to statistical mechanics and elementary quantum statistics.

PHYS 4423* Mechanics II. Prerequisite(s): 3013. Lagrangian and Hamiltonian dynamics, calculus of variations, constrained systems, coupled oscillators, continuous systems and waves.

PHYS 4513* Introductory Quantum Mechanics. Prerequisite(s): 3713. 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.

PHYS 4663* Radioactivity and Nuclear Physics. Prerequisite(s): 3713 or consent of instructor. Natural and artificial radioactivity, decay laws; absorption, detection and measurement of radiation; nuclear transformations; nuclear instrumentation, dosimetry with ionization chambers, integrating dosimeters and personal dosimeters.

PHYS 4712* Senior Project. Lab 6. Advanced individual experimental projects. Project proposal, formal laboratory report, and oral presentation are required.

PHYS 4813* Electromagnetic Radiation. Prerequisite(s): 3213, 3513, 4113. 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.

PHYS 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

PHYS 5000* Master's Thesis Research or Report. 1-9 credits, max 9. Prerequisite(s): Consent of major professor. Thesis research or report for master's degree.

PHYS 5110* Seminar. 1-5 credits, max 20. Prerequisite(s): Graduate standing in physics. Special topics in physics.


PHYS 5123* Geometrical Optics. Prerequisite(s): 3213 or consent of instructor. Foundations of geometrical optics, geometrical theory of optical systems, geometrical theory of aberrations, image forming instruments. (Same course as ECE 5803)

PHYS 5133* Laser Spectroscopy. Prerequisite(s): 5163. 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.


PHYS 5213* Statistical Mechanics. Prerequisite(s): 5113 and 5613 or consent of instructor. Classical and quantum mechanical distribution functions for independent particles; interacting classical and quantum systems, superfluidity, phase transitions and critical phenomena, nuclear and particle physics.

PHYS 5220* Physics Topics for Teachers. 1-6 credits, max 6. Prerequisite(s): Teaching experience or consent of instructor. 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.

PHYS 5263* Particle Physics. Prerequisite(s): 5163 or consent of instructor. Particle structure 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.

PHYS 5303* Physical Optics. Prerequisite(s): 3213 or consent of instructor. 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 ECE 5823*)

PHYS 5313* Electromagnetic Theory. Prerequisite(s): 5453. Electric and magnetic fields in free space and in matter. Boundary value problems, Green's functions, stress tensors, multipole expansions, thermodynamics, electromagnetic waves.

PHYS 5350* Special Problems. 1-3 credits, max 3. Prerequisite(s): Graduate standing in physics. Special problems of experimental or theoretical nature. Largely individual work with written report required.

PHYS 5413* Classical Mechanics. Prerequisite(s): 4423 or consent of instructor. Generalized coordinates and advanced dynamics; coupled systems, wave motion; theory of elasticity.

PHYS 5453* Methods of Theoretical Physics. Prerequisite(s): 3513. Introduction to the various methods and techniques used in theoretical physics.

PHYS 5523* Radiation Detection and Measurement. Prerequisite(s): 3713 or 4212. 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.

PHYS 5553* Dosimetry and Radiation Protection. Prerequisite(s): 4663 and 5523 or consent of instructor. 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 equilibrium, Bragg-Gray Cavity Theory, quantifying dose from radionuclides, radiometric instrumentation, dosimetry with ionization chambers, integrating dosimeters and personal dosimetry.

PHYS 5563* Radioactivity and Nuclear Physics Laboratory. Lab 4. Prerequisite(s): 4663 and 5523 or consent of instructor. 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 radiotheraphy 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.

PHYS 5573* Radiation Biophysics. Prerequisite(s): 5533 or consent of
instructor. 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.

PHYS 5533* Physics of Medical Imaging. Prerequisite(s): 4663 and 5523 or consent of instructor. Review of radiation interaction with matter, x-ray imaging, Magnetic Resonance Imaging, Ultrasound, Scintillation Imaging. Single photon emission computed tomography (SPECT), Positron Emission Topography (PET).

PHYS 5593 Physics of Radiation Therapy. Prerequisite(s): 5533 or consent of instructor. Overview of Radiation Therapy, dosimetry in radiation therapy, megavoltage x-ray and electron therapy, manual treatment planning, computer-based treatment planning, brachytherapy, proton therapy.

PHYS 5613* Quantum Mechanics I. Prerequisite(s): 5453, 5453, 5453, Postulates of quantum mechanics. Operators, commutation relations, eigenfunctions. Schroedinger, Heisenberg and interaction formalisms, angular momentum and central field problems; nondegenerate perturbation theory.

PHYS 5663* Solid State Physics I. Prerequisite(s): 4513. 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.

PHYS 5693* Clinical Studies in Medical Physics. Prerequisite(s): 5583, 5583 and consent of instructor. Students will perform a clinical rotation within a hospital-based radiation therapy treatment clinic, during which they will shadow a medical physicist and observe and participate in (when appropriate) the physicists' daily clinical activities. The student will learn the technical aspects of CT and MR imaging, radiotherapy treatment planning and delivery, and routine and patient specific calibration/quality assurance procedures.

PHYS 5713* Solid State Physics II. Prerequisite(s): 5663 or equivalent. Symmetry, dielectric properties, ferroelectrics, magnetic properties, mechanical properties, and defects of solids.

PHYS 5813* General Relativity. Prerequisite(s): 5453 or consent of instructor. Theory and applications of general relativity: the principle of equivalence, general coordinate invariance, tensors, affine connections, Einstein’s field equations, classical tests, application to stellar dynamics, black holes, and cosmology.

PHYS 5960* Problems in Chemical Physics. 3-6 credits, max 6. Prerequisite(s): Consent of instructor. Intermediate problems of quantum mechanics. (Same course as CHEN 5960 & ECEN 5960)

PHYS 6000* Doctoral Dissertation Research. 1-15 credits, max 60. Prerequisite(s): Admission to candidacy and permission of major professor.

PHYS 6010* Advanced Graduate Seminar. 1-3 credits, max 15. Prerequisite(s): Consent of instructor. Special topics of an advanced nature in physics.

PHYS 6113* Advanced Theory of Solids. Prerequisite(s): 5663. Many-body techniques, transport processes, band theoretical techniques, superconductivity, dynamics of electrons in a magnetic field, and alloys.


PHYS 6243* Semiconductors I. Prerequisite(s): 5113, 5613, 5663. The first part of a survey of the physics of semiconductors. Bonding and structure, crystal growth, epitaxial growth, band theory, phonons, photons, defects, intrinsic and extrinsic statistics, trapping and recombination.

PHYS 6260* Special Topics in High Energy Physics. 1-3 credits, max 9. Prerequisite(s): 5263 or consent of instructor. Advanced topics of current interest in high-energy physics: collider physics, supersymmetry, unification, flavor physics, string phenomenology, extra dimensions.

PHYS 6313* Quantum Mechanics II. Prerequisite(s): 5613. Scattering theory, many-particle quantum mechanics and application to atomic and molecular systems; degenerate and time-dependent perturbation theory.

PHYS 6323* Quantum Field Theory. Prerequisite(s): 6313 or consent of instructor. Relativistic Quantum Mechanics: Klein-Gordon field, path integral formulation of Quantum Mechanics, Feynman diagrams, Quantum Electrodyamics, relativistic scattering radiative corrections, renormalization and critical exponents, non-Abelian gauge theories, spontaneous symmetry breaking.

PHYS 6343* Semiconductors II. Prerequisite(s): 6243. The second part of the semiconductors sequence. Transport phenomena, junctions, devices, heterostructures, and optical properties.

PHYS 6413* Nonlinear Optics. Prerequisite(s): 5163, 5313, and 5613. 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.

PHYS 6423* Quantum Optics. Prerequisite(s): 5163, 5613 or consent of instructor. Quantization of Electromagnetic Fields, coherence, quantum entanglement, parametric down conversion, two photon interferometry, Bell’s inequalities, quantum teleportation and cryptography, cavity QED.

PHYS 6513* Advanced Topics in Solid State Physics. Prerequisite(s): 5663 or equivalent. Interaction of radiation and matter, neutron scattering, phase transitions, magnetic resonance and cooperative phenomena.

PHYS 6613* Advanced Nuclear and Particle Physics. Prerequisite(s): 5263, 6313, or consent of instructor. Renormalization of quantum field theories, spontaneous symmetry breaking, Standard model, flavor physics, grand unification.

PHYS 6713* Advanced Electromagnetic Radiation. Prerequisite(s): Consent of instructor. Radiation theory, wave guides, scattering and dispersion relations; relativity.

PHYS 6803* Photonics I: Advanced Optics. Lab 9. Prerequisite(s): ECEN 3213 or 3813. Advanced optics including spectral and time characteristics of laser sources, optical components, spatial and temporal characteristics of laser emission, interferometeric 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*)

PHYS 6810* Photonics II: THz Photonics and THz-TDS. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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)

PHYS 6820* Photonics II: Spectroscopy II. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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)

PHYS 6830* Photonics II: Spectroscopy III. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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 photocurrent measurements. (Same course as CHEM 6830 & ECEN 6830)

PHYS 6840* Photonics III: Microscopy I. 1 credit, max 4, Lab 1. Prerequisite(s): CHEM 3553 or consent of instructor. The structure and imaging of solid surfaces. Basics of scanning probe microscopy (SPM). Contact and noncontact atomic force microscopy (AFM), Tunneling microscopy (STM) in air. (Same course as CHEM 6840 & ECEN 6840*)

PHYS 6850* Photonics III: Microscopy II. 1 credit, max 4, Lab 1. Prerequisite(s): 3553 or consent of instructor. 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*)

PHYS 6860* Photonics III: Microscopy III and Image Processing. 1 credit, max 4, Lab 1. Prerequisite(s): CHEM 5793. 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*)

PHYS 6870* Photonics IV: Synthesis and Devices I. 1 credit, max 4, Lab 1. Prerequisite(s): 6803 and 6840. 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*)

PHYS 6880* Photonics IV: Semiconductor Devices, Testing and Characterization. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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*)

PHYS 6890* Photonics IV: Semiconductor Synthesis and Devices III. 1 credit, max 4, Lab 1. Prerequisite(s): 6803. 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 techniques such as mask aligning, ion implantation, 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*)

Plant Pathology (PLP) - PLP 2143 Global Issues in Agricultural Biosecurity and Forensics. Biobiosecurity, biosecurity, 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. (Same course as ENTO 2143)
PLP 3343 Principles of Plant Pathology. Lab 2. Prerequisite(s): BOT 1404 or BOT 3463 or MICR 2125 or PLNT 2013. 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 3343 and 5343.

PLP 3553 Fungi: Myths and More. Lab 1. Prerequisite(s): BIOL 1114. Explores the impact of fungi on beliefs, culture and society via the colorful folklore and myths of fungi and their role in the environment and human affairs, including diseases of plants, animals and humans exemplified by the Great Bengal potato famine of 1943. The Irish potato famine, 1840's and the Salem witch trials 1692. Laboratory instruction on use of microscopes, mushroom identification, mechanisms of dispersal, and genetic recombination. (Same course as BOT 3553)

PLP 3663 Turfgrass Integrated Pest Management. Lab 2. Prerequisite(s): 3343, ENTO 2993. The biology, ecology and identification of fungal, nematode and insect turfgrass pests. Contemporary concepts and applications of integrated control practices available for managing turfgrass pests presented along with decision-making tools for use in turfgrass pest management programs. (Same course as ENTO 3663)

PLP 4400 Special Topics. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Special topics in Plant Pathology, Entomology or related fields. (Same course as ENTO 4400)

PLP 4923* Applications of Biotechnology in Pest Management. Prerequisite(s): BIOL 1114 and CHEM 1215 or equivalent. Applications of biotechnology in pest management, including arthropod pests and animals, 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)

PLP 5000* Research. 1-6 credits, max 6. Research for the MS degree.

PLP 5003* Plant Nematology. Lab 2. Prerequisite(s): 3343 or concurrent enrollment. General morphology, taxonomy and biology of parasitic and plant parasitic nematodes. Plant parasitic nematode assay techniques, subfamily identification, symptomology, pathogenicity and control.


PLP 5013* Plant Virology. Prerequisite(s): 3343 or equivalent; one course in biotechnology or molecular biology. Transmission, characterization, differentiation, replication, and control of plant viruses; discussion of current literature.

PLP 5104* Mycology 2. Prerequisite(s): Graduate standing. A systematic study of the fungi, with emphasis on taxonomy, comparative morphology and fungal biology. Taught in the Department of Plant Pathology. (Same course as BOT 5104*)

PLP 5304* Phytophathiology. Lab 3. Prerequisite(s): 3343. Bacteria as plant pathogens, with examination of the taxonomy, genetics, ecology, physiology, host-parallel interaction, and control of phytophathogenic bacteria.

PLP 5343* Principles of Plant Pathology. Lab 2. Prerequisite(s): BOT 1404 or BOT 3463 or MICR 2125 or PLNT 2013. 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 3343 and 5343. Graduate students will be expected to complete extra assignments.

PLP 5413* Plant Disease Epidemiology. Lab 3. Prerequisite(s): 3343 or 5043. Introduction to methodology and technical equipment used in epidemiological research and application of epidemiological principles in plant disease control.

PLP 5524* Integrated Management of Insect Pests and Pathogens. Lab 4. Prerequisite(s): 3343, ENTO 2993 or equivalent or consent of instructor. 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 analysis. (Same course as ENTO 5524)

PLP 5560* Problems in Plant Pathology. 1-5 credits, max 10. Prerequisite(s): Consent of instructor.

PLP 5613* Host Plant Resistance. Lab 2. Prerequisite(s): 3343 and ENTO 2993 or equivalent and a general genetics course, or consent of instructor. Interactions of plants and the herbivorous insects and pathogenic microorganisms that attack them. Development and deployment of multiple-pest resistant cultivars in crop management systems. (Same course as ENTO 5613)

PLP 5623* Advanced Biotechnology Methods. Lab 3. Prerequisite(s): BIOL 3653, BIOL 3023 or equivalent or consent of instructor. Overview of current theory and principles of biotechnology and laboratory experiences with contemporary techniques and experimental methods used in biotechnology, including genome analysis, gene transfer, identification and isolation of genes and their products, and regulation of gene expression in plants and arthropods. (Same course as ENTO 5623*)

PLP 5700* Teaching Practicum in Plant Pathology. 1-6 credits, max 6. Prerequisite(s): Graduate student standing. Variable credit offering for graduate students who wish to develop skills in teaching, assessment and course development working in conjunction with a primary instructor.

PLP 5724* Physiology of Host-Pathogen Interactions. Lab 4. Prerequisite(s): 3343 and BIOL 3853. Physiology of the interactions between plants and pathogens. Mechanisms by which pathogens infect and by which plants resist infection.

PLP 5860* Colloquium. 2 credits, max 2. Prerequisite(s): 3343. Concepts and principles of plant pathology through discussions of pertinent literature.

PLP 5870* Scientific Presentations. 1 credit, max 5. Prerequisite(s): Consent of instructor. Preparation and delivery of scientific presentations, including 50-minute seminars, 10-minute talks, and posters. (Same course as ENTO 5870*)

PLP 5992* Career Skills and Professionalism for Scientists. Prerequisite(s): Graduate standing. 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*)

PLP 6000* Research. 1-12 credits, max 36. Research for the PhD degree.

PLP 6303* Soilborne Diseases of Plants. Lab 3. Prerequisite(s): 3343. Soilborne diseases, their reception and importance, the pathogens involved, 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.

Plant Science (PLNT)

PLNT 1101* Orientation to Plant and Soil Sciences. Introduction to areas of study, professional activities and career opportunities in plant and soil sciences.

PLNT 1213 Introduction to Plant and Soil Systems. 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.

PLNT 1223 Plants, Genes and the Consumer. Issues of plant-based food production from both a scientific and a social perspective. The fundamental principles of plant growth and development; how plants function in an agroecosystem and how to utilize these principles to grow food in an environmentally and socially sound manner. The role of genetics and biotechnology. No credit for Plant and Soil Sciences or Horticulture majors.

PLNT 2013 Applied Plant Science. Lab 2. Prerequisite(s): 1213 or BOT 1404 or FOR 1123 or HORT 1013. 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.

PLNT 2041 Career Development in Plant and Soil Sciences. Prerequisite(s): Sophomore standing in plant and soil sciences. Develop personal goals in plant and soil sciences through identification of personal values, skills building, exploration of career opportunities, and networking. Graded on pass/fail basis.

PLNT 3113 Principles of Weed Science. Lab 2. Prerequisite(s): 1213 or HORT 1013. Basic principles of weed biology and ecology and methods for cultural, chemical, mechanical, and biological weed management in crop production and turf grass systems.

PLNT 3554* Plant Genetics and Biotechnology. Lab 2. Prerequisite(s): BIOL 1114. Basic principles of heredity. Interrelationship between classical genetics and molecular genetics emphasized. Mendelian genetics, cytogenetics, mutations, gene regulation and genetic engineering.

PLNT 3782 Seed Technology. Prerequisite(s): 1213. Factors determining seed quality and utilization during growth, harvest, and storage. Modern techniques to determine seed quality for optimum processing and utilization of seed crops. Minimum of two field trips required.

PLNT 3790 Seed and Plant Identification. 1 credit, max 2. Lab 3. Prerequisite(s): 1213. Identification and classification of agronomically important crop and weed species from seed and from seedling, vegetative, flowering or mature plants.

PLNT 4080 Professional Internship. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Internship must be at an approved agribusiness or other agency serving agronomy, plant science or soil science. Requires written reports and a final presentation.

PLNT 4113* Advanced Weed Science. Prerequisite(s): 3111 and 3221. Integrated approach for weed management. Weed life cycles and biology, weed crop interference, herbicide families and their characteristics, and finally a systematic and integrated weed management system. Methods of conducting and interpreting research results in appropriate topics.

PLNT 4123* Plant-Environment Interactions. Prerequisite(s): BOT 1404. Environmental impact on plant life cycle; (i.e. germination, flowering and senescence); plant growth responses (e.g. photosynthesis, phototropism, 2014-2015 University Catalog

---

324  •  Plant Science (PLNT)
biomass production) to light quality, precipitation, temperature, and population or community changes.

PLNT 4353* Plant Breeding. Prerequisite(s): 3554 or equivalent. Basic principles dealing with the improvement of plants through application of genetic principles.

PLNT 4470* Problems and Special Study. 1-3 credits, max 12, Lab 1-3. Prerequisite(s): Consent of instructor. Problems in plant science selected from topics in range and turf, plant breeding and genetics, crop management and physiology, and weed control.

PLNT 4571 Professional Preparation in Plant and Soil Sciences. Prerequisite(s): Senior standing in plant and soil sciences. Preparation for professional certification exams and career opportunities in plant and soil sciences. (Same course as SOIL 4571)

PLNT 4573* Bioenergy Feedstock Production. Prerequisite(s): 1213. 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.

PLNT 4613* Forage and Grazinglands Resource Management. Prerequisite(s): 1213 or BOT 1404. Designing forage systems that optimize yield potential, economical livestock production and pasture system development.

PLNT 4673* Cropland Ecosystems. Lab 2. Prerequisite(s): 2013. Designing sustainable cropping systems that optimize yield potential, economic and environmental benefits while adapting upon climatic and social conditions.

PLNT 4783* Cotton Production. Prerequisite(s): 1213. Production, utilization and improvement of cotton. Several other agronomic fiber crops briefly discussed.

PLNT 4923* Applications of Biotechnology in Pest Management. Prerequisite(s): BIOL 1114 and CHEM 1215 or equivalents. 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 and PLP 4923)

PLNT 4990 Senior Thesis in Plant and Soil Sciences. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. 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.

PLNT 5000* Master's Thesis. 1-6 credits, 5 max total credits under Plan I, and 2 max total credits under Plan II. Prerequisite(s): Consent of instructor. Research planned, conducted and reported in consultation with a major professor.

PLNT 5020* Graduate Seminar. 1 credit, max 3. Prerequisite(s): Graduate standing. Discussions of research philosophy, methods, interpretation, and presentations. Profession development and contributions to the scientific community. (Same course as SOIL 5020)

PLNT 5110* Problems and Special Study. 1-4 credits, max 12. Prerequisite(s): Consent of instructor. Supervised study of special problems and topics not covered in other graduate courses.

PLNT 5112* Herbicide Fate in the Environment. Prerequisite(s): 4113. Processes involved in the behavior and fate of herbicides in air, soil, and water. Reaction, movement, and dissipation of herbicides in soil.

PLNT 5230* Research. 1-4 credits, max 8. Prerequisite(s): Consent of a faculty member supervising the research. Supervised independent research on selected topics.

PLNT 5293* Plant Response to Water Stress. Prerequisite(s): BIOL 3653, BOT 3463. 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.

PLNT 5313* Simulation Models in Research, Management and Policy. Prerequisite(s): 1213. Use crop simulation models (CSM) and decision support systems to address challenges associated with solving gaps in the research. CSM as surrogates to field studies and to design experiments to fill in knowledge gaps.

PLNT 5403* Physiological Action of Herbicides. Prerequisite(s): BOT 3463. The modes of action, uptake and translocation, and metabolism of herbicides in crops and weeds.

PLNT 5412* Plant Breeding Methods. Prerequisite(s): 3554 or 4353 or consent of instructor. 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.

PLNT 5433* Biotechnology in Plant Improvement. Prerequisite(s): 3554, 4353, and BIOL 3014 or consent of instructor. 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.

PLNT 5443* Advanced Genetics. Prerequisite(s): 3554; BIOL 3653. Concepts of eukaryotic genetics with emphasis on classical, molecular, and quantitative genetics.

PLNT 5452* Cyto genetics. Prerequisite(s): 5443 or concurrent enrollment in BOT 5232. Behavior of chromosomes, cellular organelles and cytoplasm in relation to genetic behavior.

PLNT 5453* Applied Plant Genomics. Prerequisite(s): Graduate standing and 3554 or BIOL 3023 or consent of instructor. Use and application of genomic knowledge and technology to improve agriculturally important plants. Major topics include structural and comparative genomics and their application in molecular breeding of agronomic crops. Extensive laboratory practice provided.

PLNT 5863* International Agricultural Research Systems. Organization, management and budgeting of agricultural research systems with emphasis on development countries. Analysis of research and training priorities, budgeting, staffing and management of projects.

PLNT 6000* Doctoral Thesis. 1-6 credits, max 36. Prerequisite(s): Consent of adviser. Independent research to be conducted and reported with the supervision of a major professor as partial requirement for the PhD degree.

PLNT 6010* Advanced Topics and Conference. 1-6 credits, max 12. Prerequisite(s): MS degree. Supervised study of advanced topics. A reading and conference course designed to acquaint the advanced student with fields not covered in other courses.

PLNT 6410* Topics in Plant Breeding and Genetics. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. 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.

Political Science (POLS)

POLS 1010 Studies in American Government. 1-2 credits, max 2. Special study in American government to allow transfer students to fulfill general education requirements as established by Regents' policy.

POLS 1113 American Government. 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.

POLS 2013 (S) Introduction to World Politics. Analysis of the major concepts in international relations - power, sovereignty, self-help, cooperation, dependency, and introduction to the dominant theoretical approaches to its study realism, pluralism, Marxism, and feminism.


POLS 2033 Introduction to Public Administration. Public administration, including administration, administrative organization, decision-making, governmental public relations and administrative responsibilities.

POLS 2113 (S) Introduction to Comparative Politics. A comparative study of the political processes and institutions of contemporary societies. Introduction to the concepts and methods of comparative politics.

POLS 2993 Honors Tutorial in Political Science. Prerequisite(s): 1113. Honors standing, and invitation by head of department. For the special needs of the sophomore-level honors student majoring in political science who wishes to study selected topics at a 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.

POLS 3003 (I,S) The Soviet Union: History, Society and Culture. 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)

POLS 3033* International Law. The nature and scope of public international law. Special emphasis on problems related to the recognition of states and governments, jurisdiction over nationals and aliens, and state responsibility in cases of expropriation and revolutionary damage.

POLS 3053 (I,S) Introduction to Central Asian Studies. A comprehensive view of newly-emerged Central Asian states examining the history, politics, economy, 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 GEG 3053, HIST 3053 & RUSS 3053)

POLS 3090 Teaching Practicum. Prerequisite(s): Consent of instructor. 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).

POLS 3100 Political Science Internship. 1-6 credits, max 6. Prerequisite(s): Consent of department. Internship education experience in a specific subfield in
the discipline of political science.

POLS 3103 Introduction to Political Inquiry. Prerequisite(s): 60 credit hours or 45 hours with GPA of 3.25, including 2113. 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.

POLS 3123 (I) Politics of Russia/Former Soviet Union. Political processes, governmental institutions and public policies of post-Soviet Russia. Parties, elections and citizen participation in government.

POLS 3143 (I) Politics of Western Europe. State-society relations in key West European countries, including political processes, governmental institutions, cultural pluralism and gender relations.

POLS 3163 (I) Politics of Africa. Analysis of processes, institutions and contemporary trends in the politics of selected African countries, including political development, democratization, conflict, political role of the military, political economy, and social movements.

POLS 3193 (I,S) Politics of Latin America. Analysis of processes, institutions and contemporary trends in the politics of selected Latin American countries; political development, democratization, political role of the military, political economy and social movements.

POLS 3223 Politics of East Asia. Political processes, governmental institutions and administration in China, Japan, and Korea.

POLS 3313 Politics of the Middle East. Analysis of political institutions and processes with emphasis on selected countries of the Middle East; the social and economic basis of politics; nationalism, political development and factors of instability and change.

POLS 3353 Parties and Interest Groups. Political parties and interest groups as institutions; their role in elections and government.

POLS 3423 Voting and Elections. Electoral systems and their relationship to political development, political socialization, issue emergence, voting patterns and electoral cycles.

POLS 3443 Political Campaigns and Candidacy. Planning, fundraising, targeting, public opinion, support operations, voter contact, the mass media and candidate activities.

POLS 3453 The Legislative Process. The power and organization of legislatures, as well as the selection and behavior of legislators. Special attention given to the U.S. Congress.

POLS 3483 The American Presidency. 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.

POLS 3493* Public Policy. Prerequisite(s): Any one of 1013, 2033, 2113, ECON 1113, 2123, SOC 1113, PHIL 2113. Identification of policy options open to policy makers and examination of measurements and rationales underlying governmental programs.

POLS 3513 Public Opinion and Polling. The nature of public opinion. Public opinion polling, the factors influencing opinion formation, and the effects of public opinion on policy and policy makers.

POLS 3523 Money, Media and Politics. Prerequisite(s): 1113. 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.

POLS 3533 Political Lobby and Grassroots Organization. Prerequisite(s): 1113. Traditional special interest lobbying and the rapidly emerging local grassroots constituent movement. New federal laws pertaining to lobbying and rules that govern the conduct of state lobbying. The implications of technology and the potential advent of a plebiscite form of government. Development of complete grassroots strategy on an issue either at the federal or state level.

POLS 3613* State and Local Government. Political processes, government and administration of American states, cities and counties; special emphasis on Oklahoma.

POLS 3663 Introduction to Political Thought. The teachings of the three lasting traditions of Western political thought: classical, Christian and modern.

POLS 3683 Politics in Contemporary Film. Prerequisite(s): 1113. The effect of politics on contemporary film. Exploration of the often subtle political imagery and symbolism contained in film.

POLS 3733 Incident Management and Tactical Operations. Strategic management of an emergency incident through the use of the Incident Management System. A thorough study of the IMS system and tactical decision-making forming the base for case study analysis and emergency operations simulations.

POLS 3763 Mitigation and Recovery. Prerequisite(s): 3813. Introduction to recovery and mitigation activities for emergency managers. Covers components, policies, programs and organizations related to recovery and mitigation, illustrates course concepts with case studies.

POLS 3813 Aim and Scope of Emergency Management. 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.

POLS 3893 Terrorism and Emergency Management. A general introduction to the basic concepts for preparedness, response and command functions at the scene of a potential terrorist incident.

POLS 3953 (D,S) Minorities in the American Political System. Prerequisite(s): 1113. Examination of mass and elite level behavior of minorities in the contemporary U.S. political system.

POLS 3973 (D) Race, Politics and Sports. Prerequisite(s): 1113. Historical, as well as the contemporary relationship, between race, politics and sports in the U.S. political system.

POLS 3983 (S) Courts and Judicial Process. 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.

POLS 3993 Legal Research and Analysis. Prerequisite(s): 2023 or HONR 2013. 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.

POLS 4000* Topics in American Politics. 3 credits, max 6. Prerequisite(s): 1113 and 45 earned hours or consent of instructor. In-depth examination of critical topics and issues in American politics, including American political behavior and political leadership. May be repeated with different topics.

POLS 4010* Topics in International Relations. 3 credits, max 6. Prerequisite(s): 2013 or 2113 or consent of instructor. In-depth examination of critical topics and issues in International Relations. May be repeated with different topics.

POLS 4031* American Foreign Policy. Major problems and policies of American foreign relations since World War II and description of foreign formulation and aid administration.

POLS 4040* Topics in Comparative Politics. 3 credits, max 6. Prerequisite(s): 2013 or 2113 or consent of instructor. In-depth examination of critical topics and issues in Comparative Politics. May be repeated with different topics.


POLS 4053 (I) War and World Politics. Foreign policies of major powers, areas of tension and sources of international conflict.

POLS 4080* Problems of Government, Politics and Public Policy. 1-6 credits, max 6. Prerequisite(s): 60 credit hours, or 45 hours with GPA of 3.25, including 1013. Special problem areas of government, politics and public policy concentrating on topics not covered in other departmental course offerings.

POLS 4113* International Institutions. The organization, procedures, functions and role of international institutions, with emphasis on the United Nations and related agencies.

POLS 4223 Comparative Political and Social Movements and the Politics of Protest. Prerequisite(s): 1113. The origins, activities and impact of political and social movements. Concepts and theoretical approaches related to political and social movements and these concepts and approaches to case studies of several contemporary movements in the United States, Latin America, and Europe.

POLS 4253* Administrative Law. Legal powers, limits, and procedures of administrative agencies with emphasis on federal and state administrative procedure acts.

POLS 4263* Environmental Law and Policy. Statutory law, case law, and administrative practices relating to regulation of the environment including environmental impact statements, pollution, public lands, and preservation law.

POLS 4403* Urban Politics and Management. Problems of governing and managing American metropolitan areas.

POLS 4413* Government Budgeting. The politics, planning and administration of government budgets. (Same course as 5320*)

POLS 4453* Public Personnel Administration. Problems, processes, and procedures of public personnel administration. (Same course as 5333*)

POLS 4553 American Political Thought. 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.
POLS 4573* Democratic Theory. 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.

POLS 4593* Natural Resources and Environmental Policy. 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.

POLS 4623 (S) Oklahoma Politics. Prerequisite(s): 1113. 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.

POLS 4653 (H) Contemporary Political Thought. 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.

POLS 4670* Topics in Political Theory. 3 credits, max 6. In-depth examination of critical topics and issues in classic, modern, or American political theory. May be repeated with different topics.


POLS 4963 U.S. Constitution: Civil Rights and Liberties. Prerequisite(s): 2023 or 3983 recommended. 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.

POLS 4973* U.S. Constitution: Civil Liberties. Prerequisite(s): 2023 or 3983 recommended. Development of principles of constitutional law by the Supreme Court concerning freedom of speech expression, religious liberty, property rights, 5th and 14th amendments due process concepts and procedure requirements at national and state level.

POLS 4980* Topics in Public Law. 3 credits, max 6. Prerequisite(s): 2023 and 3983 or 3993 or consent of instructor. In-depth examination of critical topics and issues in Public Law. May be repeated with different topics.

POLS 4990* Independent Study. 1-3 credits, max 9. 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.

POLS 4993 Political Science Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

POLS 5000* Thesis. 1-6 credits, max 6.

POLS 5013* Quantitative Methods of Political Analysis. 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.

POLS 5020* Creative Component. 3 credits, max 6. Individually supervised research.

POLS 5023* Foundation of Political Science. Overview of the foundational works, theories and approaches that define the discipline of political science and serve as bridges across its subfields.

POLS 5030* Internship in Public Administration and Government. 1-6 credits, max 6. Individually supervised internships in administrative and governmental career areas. Paper required.

POLS 5040* Readings in Politics, Public Policy or Public Administration. 1-6 credits, max 6. Prerequisite(s): Consent of supervising professor. Readings in the student’s major area of study.

POLS 5100* Directed Study. 3 credits, max 6. Directed study for master’s level students.

POLS 5103* Research Design. Prerequisite(s): Graduate standing. Overview of research design, including conceptualization and operationalization, literature review, deductive and inductive theorizing, hypothesis testing, quantitative and qualitative data collection and analysis.

POLS 5113* Seminar in Public Program Evaluation. Methodology of evaluation research and program. Emphasis will be placed on designing and interpreting evaluative studies rather than the mastery of particular mathematical, statistical or computer skills.

POLS 5133* Politics and Political Economy in the European Union. 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.

POLS 5143* Social and Political Perspectives in Europe. 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.

POLS 5203* ProSeminar in International Relations. A general survey intended to introduce students to major theoretical paradigms, applications, and debates in the field of international relations.

POLS 5210* Topics Seminar in International Relations. 3 credits, max 6. In-depth examination of critical topics and issues in International Relations. May be repeated up to 6 hours with different topics.

POLS 5213* Seminar in the International Political Economy. Prerequisite(s): Graduate standing. Research on the mechanics and theories of interaction between economic and political phenomena. (Same course as INTL 5213*)

POLS 5300* Special Topics Seminar in Fire and Emergency Management. 1-3 credits, max 9. Specialized topics in fire and emergency management.

POLS 5303* Introduction to Fire and Emergency Management. Prerequisite(s): Graduate standing. Examines the content and historical evolution of fire and emergency management including terminology, concepts, theories, and methods employed.

POLS 5313* Public Management. Introduction to the general principles of management as they are applied in the public sector. Systems theory, organization design, and techniques of supervision.

POLS 5320* Seminar in Public Budgeting and Finance. 3 credits, max 6. Major processes and practices involved in governmental budgeting in the United States at national, state and local level. (Same course as 4413*)

POLS 5323* Urban Politics and Management. Introduction to the concepts, processes and techniques of managing urban political systems to include principles of leadership, decision-making, general management and group behavior.

POLS 5333* Seminar in Public Personnel Administration. Current practices, problems and issues in public sector personnel administration, including merit system, civil service reform collective bargaining, and equal opportunity and affirmative action.

POLS 5343* Seminar in Fire and Emergency Services Administration. Introduction to policies, procedures and administrative process required to deliver fire and emergency services; detailed examination of the social, political and economic issues that have an impact on service delivery and organizational approaches.

POLS 5353* Seminar in Design, Structure and Processes of Public Organizations. 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.

POLS 5363* Public Sector Dispute Resolution. Prerequisite(s): Senior or graduate standing. 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.

POLS 5383* Disaster Recovery. Prerequisite(s): 5683. 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.

POLS 5393* Politics of Disaster. Prerequisite(s): Graduate standing and 5303 or consent of instructor. 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.

POLS 5403* ProSeminar in Comparative Politics. Designed as a graduate seminar to familiarize graduate students with the core research traditions and theoretical development in the field of comparative politics.

POLS 5410* Topics Seminar in Comparative Politics. 3 credits, max 6. In-depth examination of critical topics and issues in Comparative Politics. May be repeated up to 6 hours with different topics.

POLS 5510* Seminar in Political Behavior. 1-3 credits, max 6. Examination of contemporary theories of political behavior with emphasis on empirical studies.

POLS 5513* Seminar in Political Psychology. Examination of psychological theories as they pertain to political behavior, including attitude change, political cognition, public opinion and decision-making.

POLS 5613* Public Policy Analysis. Analytical methods for evaluating public policies and examination of the public process including policy design, implementation and evaluation.

POLS 5620* Seminar in Natural Resource Policy, Law and Administration. 3 credits, max 9. 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.

POLS 5633* Practical Environmental Compliance. 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.

POLS 5643* Regulatory Risk Analysis. 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.

POLS 5653* Risk Assessment in Emergency Management Planning. Risk assessment for the emergency manager and fire department manager. Conceptualization of risk, use in emergency management planning, and its limitations. Applications to emergency management. Specifically designed for FEMP students, but of interest to students in environmental management.

POLS 5663* Community Relations in Environmental and Emergency Management. Preparation for the environmental manager, emergency manager, and fire department manager to communicate with the public and media concerning environmental threats to human health routine and non-routine releases of chemicals and radioactive materials. Strategies for community-based planning, emergency preparedness, environmental response, site damage, and conflict management.

POLS 5673* Understanding and Responding to Terrorism. 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; government 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.

POLS 5833* Emergency Management and Public Policy in the United States. 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.

POLS 5863* Emergency Management in the International Setting. 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 effort.

POLS 5703* ProSeminar in American Politics. 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.

POLS 5710* Topics Seminar in American Politics. 1-3 credits, max 6. In-depth examination of critical topics and issues in American Politics. May be repeated up to 6 hours with different topics.

POLS 5713 Seminar in Public Law. 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.

POLS 5720* Topics in Political Science. 3 credits, max 6. In-depth examination of critical topics and issues in Political Science. May be repeated up to 6 hours with different topics.

POLS 5743* Seminar in Political Communication. 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.

POLS 5810* Seminar in Women and Politics. 3 credits, max 9. Prerequisite(s): Graduate standing. Research on a variety of topics concerning women and politics, including women’s movements, women and elections, and public opinion.

POLS 5903* Practicum in Fire and Emergency Management Administration. Prerequisite(s): Consent of instructor. Supervised practicum in fire and emergency management administration.

POLS 5923* Preparedness and Planning. Prerequisite(s): Graduate standing and 5303 or consent of instructor. 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.

POLS 5933* Disaster Response. Prerequisite(s): Graduate standing and 5303 or consent of instructor. 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 emergency management structures and responses, including emergency operating centers. Review of local and national government response policies.

POLS 6000* Doctoral Dissertation Research. 1-12 credits, max 60. Prerequisite(s): Consent of major professor. Research for PhD dissertation.

POLS 6003* ProSeminar in Fire and Emergency Management. Prerequisite(s): Graduate standing. Examines scope of the fire and emergency management field as an area of academic inquiry.

POLS 6013* Qualitative Methods for Fire and Emergency Managers. Prerequisite(s): Graduate standing. Qualitative methods for collecting and analyzing data from fire and emergency management field.

POLS 6040* Directed Readings in Fire and Emergency Management. Prerequisite(s): Graduate standing or consent of instructor. Directed readings for doctoral students in specialized areas of fire and emergency management.

POLS 6123* Quantitative Methods for Fire and Emergency Managers. Prerequisite(s): Graduate standing and 5013 or consent of instructor. Descriptive, inferential, and non-parametric statistics with collection and analysis of data from fire and emergency management field.

POLS 6133* Seminar in Fire and Emergency Management Research Survey. Prerequisite(s): Graduate standing and 5103, 6013, and 6123. Survey of the academic literature in the fields of fire and emergency management. Development of a research article for submission to a professional journal or conference.

POLS 6143* Methods for Disaster Research. Prerequisite(s): Graduate standing and 5303 or 5103. History and scope of methods for disaster research.

POLS 6153* Pedagogical Methods for Fire and Emergency Management Instruction. Prerequisite(s): Graduate standing. History of FEMA education, review of instructional methods, and research on educational methods in field.

POLS 6203* Comparative and International Dimensions of Fire and Emergency Management. Prerequisite(s): Graduate standing and 6003 or consent of instructor. Comparative analysis of the organization, management, and policies of fire and emergency response services in other countries.

POLS 6213* Political Context of Fire and Emergency Management. Prerequisite(s): Graduate standing and 5343 or consent of instructor. Analysis of political environment impacting fire service including federalism and intergovernmental relations, interest groups, other public agencies, and private sector organizations.

POLS 6300* Advanced Special Topics Seminar in Fire and Emergency Management. Prerequisite(s): Graduate standing or consent of instructor. Specialized topics in fire and emergency management for doctoral students.

POLS 6303* Populations at Risk. Prerequisite(s): Graduate standing or consent of instructor. 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.

POLS 6313* Mitigation. Prerequisite(s): Graduate standing and recommended 5303, 6143 and 6153. 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.

POLS 6343* Organizational Behavior in Disaster. Prerequisite(s): Graduate standing and 5303 or consent of instructor. 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.

Psychology (PSYC)

PSYC 1113 (S) Introductory Psychology. Principles, theories, vocabulary and applications of the science of psychology.

PSYC 2313 Psychology and Human Problems. Prerequisite(s): 1113. Personality dynamics and their application to personal, cultural and vocational experience.

PSYC 2443 Clinical Child Psychology. Prerequisite(s): Psych 1113 with grade of "C" or better. 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.

PSYC 2583 (S) Developmental Psychology. Prerequisite(s): 1113. The nature of pertinent studies, causes, and theories of human developmental phenomena across the life span.

PSYC 2593 Psychology of Human Sexuality. Prerequisite(s): 1113. Survey of behavioral, personality and psychophysiological components of human sexuality, with special emphasis on the delineation of facts from sexual myths.

PSYC 2743 (S) Social Psychology. Theories and applications of social cognition, the self, pro-social and aggressive behavior, groups, attitudes and the environment.

PSYC 3013 Psychology of Motivation. Prerequisite(s): 1113. Examines the initiation, persistence and achievement of goal-directed behavior. Theory, research and applications of behavior based on controlled and spontaneous variables.

PSYC 3033 Psychology of Humor. Prerequisite(s): PSYC 1113. The course will examine theoretical perspective on the topic of humor, including cross-cultural and individual a well as the development of humor.

PSYC 3073 (N) Neurobiological Psychology. Prerequisite(s): 1113. Neural bases of human experience and behavior. Topics include sensation and perception, motivation and emotion, learning and thinking.

PSYC 3113 (N) Comparative Psychology. Prerequisite(s): 1113. Comparative study of behavior characteristics of selected samples of the animal kingdom from protozoa to humans.

PSYC 3120 Special Topics in Psychology. 1-6 credits, max 6. Prerequisite(s):
1113. Special topics in psychology to be determined by faculty

PSYC 3173 (N) Introduction to Cognitive Science. 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.

PSYC 3214 Quantitative Methods in Psychology. Lab 2. Prerequisite(s): 1113, MATH 1513 or consent of instructor. Design and evaluation of research in psychology including scales of measurement, basic research design, and quantitative procedures for data analysis, with emphasis on problems encountered in psychological research.

PSYC 3413 Psychology of Social Behaviors. Prerequisite(s): 1113, 3214. Contemporary theoretical and methodological issues in social psychology with special emphasis on the social psychology of the experiment and experimentation with the social aspects of human behavior.

PSYC 3443 (S) Abnormal Psychology. Prerequisite(s): 1113, and 60 credit hours or 45 hours with GPA of 3.25. Review of major approaches to conceptualizing abnormal behavior including dynamic, social and learning-based theories. Discussion and illustration of the major forms of mental illness such as neuroses, psychoses and character disorders.

PSYC 3513 Psychology of Learning. Prerequisite(s): 1113, 3413. 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.

PSYC 3713 Psychology of Memory. Prerequisite(s): 1113 and three additional hours of psychology. Body of contemporary research on human memory and the process of knowledge acquisition with a focus on processes and strategies inside the human mind.

PSYC 3823 Cognitive Psychology. Prerequisite(s): 1113, 3214 or equivalent. Cognitive processes including problem solving, visual imagery, attention, and memory search. Both theory and application emphasized.

PSYC 3914 Experimental Psychology: Introduction to Research Methods in Psychology. Lab 2. Prerequisite(s): 1113 and 3214 with a grade of "C" or better. 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.

PSYC 3990 Teaching Practicum. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. 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).

PSYC 4023 (N) Evolutionary Psychology. Prerequisite(s): Introductory Psychology. 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 faced by ancestral, long-term mating, sexuality, parenting, cooperation, aggression and warfare, conflict between the sexes, status, prestige, and social dominance are covered in this course.

PSYC 4123 (D,S) Psychology of Women. Prerequisite(s): 1113. Sex differences and the development of sex role behavior. Encompasses the psychological dynamics of developmental and social issues for women.

PSYC 4133 (D,S) Multicultural Psychology. Prerequisite(s): 1113. Theoretical and research perspectives on multicultural psychology.

PSYC 4143 Psychology and Law. Lab 1. 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.

PSYC 4153 Psychology and Mass Media. Prerequisite(s): 1113. 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 of film.

PSYC 4163 (D) Psychology of Prejudice and Discrimination. Prerequisite(s): 1113. Explores the nature and causes of stereotyping, discrimination and minority experience, mainly from a psychological perspective. Examines how these issues impact social group members, especially members of low status or minority groups.

PSYC 4183 Current Issues in Clinical Psychology. Prerequisite(s): 1113, 3443 and three additional credit hours in psychology. Problems of the individual in contemporary society and various clinical approaches that have been proposed as possible solutions to these problems.

PSYC 4213 (S) Conflict Resolution. Prerequisite(s): 1113. Interpersonal conflict studied from psychological perspectives. Types and uses of conflict, and conditions for constructive dispute settlements.

PSYC 4223* Decision Making and Problem Solving. Prerequisite(s): 1113 or consent of instructor. 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.

PSYC 4233 The Nature of Leadership. Prerequisite(s): 1113 or consent of instructor. The study of current psychological approaches to leadership, including trait, behavioral, and psychodynamic approaches. Psychological approaches to research and applied aspects of leadership.

PSYC 4243* Psychology of Aging. Prerequisite(s): 1113 and 2583. 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.

PSYC 4333* Personality. Prerequisite(s): 1113 or consent of instructor. Basic assumptions, research, and clinical issues relating to the major personality theories.

PSYC 4343 (S) Language Development. Prerequisite(s): 1113 or consent of instructor. 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.

PSYC 4483 (S) Psychology of Parent Behavior. Prerequisite(s): 1113. Historical and contemporary conceptions of parent-child relationship and approaches to communication and discipline; special problems in parenting.

PSYC 4493* History of Psychology. Prerequisite(s): 1113. History of psychology as an aspect of European intellectual history. Psychological thought from early philosophical roots to modern conceptions of psychology as a science.

PSYC 4770 Undergraduate Senior Thesis. 1-6 credits, max 6. Prerequisite(s): 1113, 3214, 3914, junior or senior standing and consent of instructor. Supervised independent research for the bachelor’s degree.

PSYC 4813* Psychological Testing. Prerequisite(s): 1113 and 3214. Quantitative aspects of measurement and testing, with emphasis on scaling, standardization, reliability and validity. Basic principles of construction and the ethics of use.

PSYC 4880 Senior Honors Thesis. 1-6 credits, max 6. Prerequisite(s): 3214, departmental invitation, senior standing, Honors College participation. A guided reading and research program ending with an honors thesis under the direction of a senior faculty member. Required for graduation with departmental honors in psychology.

PSYC 4883 Current Issues in Psychology. Prerequisite(s): 3214, 3914. A capstone course examining current issues in psychology, their relationship to current issues in other academic disciplines, and their relevance in an educated society.

PSYC 4990* Special Problems. 1-6 credits, max 6. Prerequisite(s): 1113, 3214 and consent of instructor. Supervised research experiences in psychology with a faculty member. May involve meetings and written paper(s).

PSYC 5000* Thesis. 1-6 credits, max 6. Required of all graduate students majoring in psychology and writing a thesis.

PSYC 5113* Psychopathology. Prerequisite(s): Graduate standing in psychology or consent of instructor. Principles of diagnosis and treatment of major disorders.

PSYC 5120* Psychology Workshop. 2-6 credits, max 6. Provides an opportunity to study specific psychological problems, both applied and theoretical.

PSYC 5153* Cognitive Assessment. Lab 1. Prerequisite(s): 3443, 4813; graduate standing in the clinical program of the Department of Psychology or consent of instructor. Issues of psychological testing and assessment, including testing 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.

PSYC 5193* Ethics and Professional Development in Psychology. Prerequisite(s): Graduate standing in the Department of Psychology. Principles of ethics with a focus on the guidelines and standards for psychology, Legal and ethical issues for the practice of clinical psychology.

PSYC 5233* Introduction to Clinical Methods. Prerequisite(s): Consent of instructor. 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.

PSYC 5304* Quantitative Methods in Psychology I. Lab 2. Prerequisite(s): 3214 or equivalent. Hypothesis testing, chi-square, student’s t, bivariate correlation and linear regression in psychology. Critical thinking regarding the
**Recreation Management and Therapeutic Recreation (RMTR)**

**PSYC 5314** Quantitative Methods in Psychology II. Prerequisite(s): 5304. 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. 

**PSYC 5333** Systems of Psychotherapy. Prerequisite(s): 5113; graduate standing in the clinical program of the Department of Psychology or consent of instructor. The major approaches to psychotherapy. Methods for creating multiple impact for behavioral change, including interpersonal, social, community and preventative interventions.

**PSYC 5380** Research. 1-12 credits, max 24. Prerequisite(s): Consent of instructor. Research project on some psychological problem.

**PSYC 5620** Seminar in Psychology. 1-12 credits, max 12. Prerequisite(s): Consent of instructor. Consideration of special topics that are particularly timely or technical in nature.

**PSYC 5660** Teaching Practicum. 1-2 credits, max 2. Prerequisite(s): Consent of instructor. Primarily for graduate students with well-defined new teaching responsibilities.

**PSYC 5813** Lifespan Cognitive Developmental Psychology. Prerequisite(s): Consent of instructor. 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.

**PSYC 5823** Cognitive Processes. Theory and experimental research findings dealing with human thought processes from a developmental and functional standpoint.

**PSYC 5913** Lifespan Social Developmental Psychology. Prerequisite(s): Consent of instructor. Examines theory and basic research in social, emotional and personality development in infancy, childhood, adolescence, and adulthood.

**PSYC 6000** Dissertation. 1-16 credits, max 60. Research and report thereon by graduate students in partial fulfillment of requirements for the Doctor of Philosophy degree.

**PSYC 6083** Principles of Behavior Therapy. Prerequisite(s): Graduate standing in the clinical program of the Department of Psychology or consent of instructor. Principles and procedures of behavior therapy and modification.

**PSYC 6133** Ethnic and Cultural Diversity in Psychotherapy. Prerequisite(s): Six credit hours of psychology and consent of instructor. 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.

**PSYC 6143** The Psychology of Substance Abuse. Prerequisite(s): Consent of instructor. Introduction to psychological classification of psychoactive substance (alcohol and drug) use disorders. Theory and research on psychological, biological, social, and environmental factors that are concomitants of substance abuse. Overview of major research techniques and treatment modalities in this area.

**PSYC 6173** Child Psychopathology and Treatment. Prerequisite(s): 2583, 3443 or equivalent; graduate standing in the clinical program of the Department of Psychology, the doctorate school psychology program or the psychiatry program, or consent of instructor. Theoretical foundations and issues in child psychopathology. Procedures used in the treatment of psychological disorders of children.

**PSYC 6223** Research Design. Prerequisite(s): 3914 and doctoral level standing. Experimental techniques in psychophysiology, sensory processing, attention and perception, motivation and emotion, and learning and memory.

**PSYC 6233** Clinical Research Design. Prerequisite(s): 5304 and 5314 or consent of instructor. Methodology and research practices in clinical psychology, including experimental design, research practice, data analysis and interpretation, ethics, and dissemination of research findings.

**PSYC 6263** Seminar in Human Development. Prerequisite(s): Consent of instructor. Behavioral aspects of development from the prenatal period to senescence. Normal development contrasted to exceptional development.

**PSYC 6353** Psychology of Motivation. Prerequisite(s): 3914. Outline of theory and research in human and animal motivation.

**PSYC 6393** Language Development. 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 development.

**PSYC 6443** Behavioral Medicine. Prerequisite(s): Graduate standing in the clinical program of the Department of Psychology; consent of instructor. 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.

**PSYC 6453** Pediatric Psychology. Prerequisite(s): Graduate standing in the Department of Psychology; consent of instructor. 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.

**PSYC 6483** Neurobiological Psychology. Prerequisite(s): 3073 and 3914 or consent of instructor. 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.

**PSYC 6523** Family Treatment Methods. Prerequisite(s): Graduate standing in the clinical program of the Department of Psychology or the doctorate counseling psychology program. Introduction to techniques and philosophies of family treatment. Includes marital counseling and emphasis on family dynamics.

**PSYC 6563** Advanced Social Psychology. Prerequisite(s): 2743. History, theory, and experimentation of dynamic interaction of group membership and individual behavior.

**PSYC 6583** Developmental Psychobiology. Prerequisite(s): 3073 or equivalent; consent of instructor. An exploration of the biological aspects of human development with particular emphasis on the physiological, ethnological, and genetic perspectives.

**PSYC 6613** Experimental Learning Theories. Prerequisite(s): Nine credit hours of psychology. Basic concepts and empirical findings in animal and human learning.

**PSYC 6640** Clinical Practicum. 1-12 credits, max 17. Prerequisite(s): Graduate standing in the clinical program of the Department of Psychology. Practicum experience for graduate students in the clinical psychology program.

**PSYC 6650** Practicum. 1-16 credits, max 16. Prerequisite(s): Graduate standing in the clinical program of the Department of Psychology. 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.

**PSYC 6723** Child Diagnostic Methods. Prerequisite(s): 5153, graduate standing in the clinical program in psychology or the doctoral school psychology program or consent of instructor. Administration and interpretation of diagnostic instruments used specifically with children.

**PSYC 6753** Assessment of Personality. Prerequisite(s): Graduate standing in the clinical program or consent of instructor. 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.

**PSYC 6813** Multivariate Statistics for Psychology. Prerequisite(s): 5304 and 5314 or permission of instructor. 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.

**PSYC 6913** Multilevel Modeling in Psychology. Prerequisite(s): 5304 and 5314; or permission of instructor. Trains students in the theory and application of multilevel models for nested and repeated measures data in psychology.

**PSYC 6980** Advanced Internship in Clinical Psychology. Prerequisite(s): 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.

---

**RMR 2403** Leisure and Society. The leisure phenomenon, the leisure services industry, and societal views of leisure in the United States. Exploration of personal and social views of leisure and how those views impact individuals, families and social groups.

**RMR 2413** Introduction to Leisure Services. The nature, scope and significance of leisure and recreation. Delivery systems for leisure services, major program areas and the interrelationship of special agencies and institutions serving the recreation needs of society.

**RMR 2433** Introduction to Therapeutic Recreation. Theory and application of therapeutic recreation with emphasis on types of illnesses and disabilities, delivery systems, programming and services.

**RMR 2443 (D,S)** Contemporary Issues in Diversity. Exploration of the primary and secondary dimensions of diversity and their impact on society. Individual and institutional responses to cultural diversity.

**RMR 2463** Laboratory in Leisure Services. Lecture, discussion and experiential learning of recreation and leisure activities. Adapted activities, small and large group games, sports, arts and crafts, music, drama and cultural...
events. Utilization of areas and facilities for leisure activities and development of activities across the lifespan. Fee required.

RMTR 2473 Foundation of Leisure Service Leadership. Introduction to the principles and practical applications of group leadership techniques, problem solving, supervision and evaluation of personnel.

RMTR 3010 Leisure Services Workshop. 1-3 credits, max 6. Intensive training program on a specialized topic in leisure services.

RMTR 3212 Lifeguard Training. Theory and practice of water safety and rescue skills essential for lifeguards. May obtain American Red Cross Lifeguard Training Certification.

RMTR 3313 Camp Operations and Programs. Operations and programming for day and resident camps. Includes all camp settings and camper populations.

RMTR 3413 Therapeutic Recreation and Mental Illness/Developmental Disabilities. Prerequisite(s): 2433. The role of Therapeutic Recreation (TR) specialists in working with individuals diagnosed with mental illness and/or developmental disabilities. Topics include terminology, etiology, prognosis, assessment, and program development in TR.

RMTR 3423 Therapeutic Recreation in Geriatric Practices. Prerequisite(s): 2433. The role of Therapeutic Recreation (TR) specialists working with the geriatric population. Topics include terminology, etiology, prognosis, assessment, and program development in TR.

RMTR 3431 Leisure Services Practicum I. Prerequisite(s): 2413. Supervised practical experience with leadership responsibilities for planning, conducting and evaluating activities and programs. Graded on a pass-fail basis.

RMTR 3432 Leisure Services Practicum II. Supervised practical experience with leadership responsibilities for planning, conducting and evaluating activities and programs. Graded on a pass-fail basis.

RMTR 3433 Therapeutic Recreation and Physical Disabilities. Prerequisite(s): 2433. The role of Therapeutic Recreation (TR) specialists in the rehabilitation of individuals with physical disabilities. Topics include terminology, etiology, prognosis of specific problems, assessment, and program development in TR.

RMTR 3441 Warm Water Therapy Lab. 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.

RMTR 3463 Program Design in Leisure Services. Prerequisite(s): MATH 1513, MATH 1483 or equivalent. Emphasis on organization, supervision, promotion and evaluation of programs.

RMTR 3473 Medical Procedures for Recreational Therapy. 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.

RMTR 3480 Junior Internship. 3-6 credits, max 6. Prerequisite(s): 2413, 2473, 3431, and one course in emphasis area of study (Therapeutic Recreation or Leisure Service Management). Supervised practical experience (minimum 200 to 400 contact hours based upon credit hours enrolled) with leadership responsibilities for planning, conducting and evaluating activities and programs. Graded on a pass-fail basis.

RMTR 3491 Pre-Internship in Leisure Services. Preparation for internship in therapeutic recreation and leisure services management.

RMTR 4010 Directed Studies in Leisure. 1-3 credits, max 6. Prerequisite(s): Consent of instructor and program head. Supervised readings, research or study of trends and issues related to leisure studies.

RMTR 4213 Water Safety Instructorship. 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).

RMTR 4433 Evaluation of Leisure Services. Prerequisite(s): STAT 2013. Methods, techniques and application of the evaluation process related to a wide variety of leisure service functions: clientele, programs, personnel, facilities and organization.

RMTR 4453* Outdoor Education. Development of a holistic approach to teaching and learning in the outdoors. Learning in, about, and for, the out-doors as a process for acquiring skills with which to enjoy outdoor pursuits.

RMTR 4463* Areas and Facilities in Leisure Services. Prerequisite(s): 3463 or consent of instructor. Planning, design and development of areas and facilities in leisure service delivery systems.

RMTR 4473* Recreation in the Natural Environment. Theory and practical application of outdoor recreation concepts with emphasis on philosophies, principles, policies, economics, trends and problems.

RMTR 4480 Internship in Therapeutic Recreation. 1-9 credits, max 9. Prerequisite(s): Last semester senior year with cumulative GPA of 2.5 and completion of 3480, 4481 and co-requisite of 4483. Supervised fieldwork experience in therapeutic recreation. Graded on a pass-fail basis. Must be taken concurrently with 4483.

RMTR 4481 Senior Seminar in Leisure Services. Prerequisite(s): Leisure major; completion of a minimum of 15 hours of Leisure Studies core courses. Culmination of course work in leisure studies. Examination of current issues, professional practices and personal philosophy of leisure.

RMTR 4483 Administrative Documentation in Internship for Therapeutic Recreation. Prerequisite(s): Last semester senior year with cumulative GPA of 2.5 and 3480, 4481 and co-requisite of 4480. Assignment based course that complements 4480 Internship in Therapeutic Recreation. Must be taken concurrently with 4480.

RMTR 4493 Administration of Leisure Services. Decision-making, problem solving, personnel policies, legal issues, fiscal policies and budget procedures related to the delivery of leisure services.

RMTR 4513* Leisure Education. Prerequisite(s): 3463. Models of leisure education discussed and practiced in conjunction with enhancing student ability with basic skills of leisure counseling to facilitate optimal leisure pursuits.

RMTR 4553* Tourism in Recreation Settings. Theory and foundations of the philosophy, principles and practices that associate tourism with recreation agencies and settings.

RMTR 4563* Entrepreneurial Leisure Services. Prerequisite(s): 3463 or consent of instructor. Introduction to the scope, characteristics and management aspects of the commercial recreation industry from an entrepreneurial perspective.

RMTR 4580 Internship in Leisure Services Management. 1-9 credits, max 9. Prerequisite(s): Last semester senior year with cumulative GPA of 2.5 and 500 verified experience hours. 4481 and co-requisite of 4683. Supervised fieldwork experience in Leisure Services Management. Graded on a pass-fail basis. Must be taken concurrently with 4683.

RMTR 4683* Administrative Documentation in Internship for LSM. Prerequisite(s): Last semester senior year with cumulative GPA of 2.5 and 500 verified experience hours. 4481 and co-requisite of 4680. Assignment based course that complements 4680 Internship in Leisure Services Management. Must be taken concurrently with 4680.

RMTR 4933* Advanced Methods in Therapeutic Recreation. Prerequisite(s): 3463 and consent of instructor. Theoretical and practical examination of contemporary implementation procedures used in therapeutic recreation practice.

RMTR 4943* Grant Writing and Nonprofit Management. Methods and techniques used in grant writing as well as the establishment of a nonprofit agency.

Religious Studies (REL)

REL 1103 (H,I) Introduction to World Religions. 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.

REL 2013 (H) Hebrew Scriptures. A study of the Hebrew Scriptures with emphasis upon content, historical background, the history of its study and the critical analysis and theological interpretation of selected passages.


REL 3223 (H) The Teachings of Jesus in Historical Context. Prerequisite(s): 2023. An exploration of the teachings of Jesus in light of modern historical research. Emphasis on interpreting selected passages from the Gospels.

REL 3243 (H) Paul and the Early Church. Prerequisite(s): 2023. The letters of Paul in their historical context with special emphasis on his theology and ethics.

REL 3573 (D,H) The Religions of Native Americans. Prerequisite(s): 1103. Selected tribal worldviews, belief systems and religious ceremonies as depicted in oral traditions, songs, and literature. Emphasis on Northern and Southern Plains Indians.

REL 3713 Religion, Culture and Society. Prerequisite(s): 1103, ANTH 2533, SOC 1113. 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 social behavior. (Same course as SOCI 3713)

REL 4033 (H) American Christianity through the Colonial Period. A study of the planting, development and spread of Christianity in America, beginning with the European roots and continuing through the colonial period up to c.1800.

REL 4050 Studies in Religion. 1-6 credits, max 9. Independent studies, seminars and courses on selected topics in religion.

REL 4113 (H,I) The World of Islam: Cultural Perspectives. The cultural heritage of the world of Islam explored through its expression in the art, architecture, and literature of the Muslim peoples.

REL 4213 (H,I) Understanding Global Islam. 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.
REL 4223 (H, I) Religions and Sects in the Middle East. A study of the religions of the Middle East and their diverse sects, focusing on how culture and religion shape the Middle East.

REL 4330 Seminar in Biblical Studies. 3 credits, max 9. Prerequisite(s): Two courses in Biblical studies. Selected topics in the academic study of the Bible.

REL 4413 Classic Christian Writings. 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.

Research (RES)

RES 5013* Principles of Writing and Evaluating Scientific Research. Fundamentals of effective scientific writing. Instruction focuses on the process of writing and publishing scientific manuscripts as well as reviewing scientific research.

RES 5023* Introduction to Clinical Epidemiology. Introduction to the principles of epidemiology. This course covers causation, epidemiological research designs, measures of disease frequency and association, detection of confounders and interaction, ethics and issues pertaining to the validity and applicability of research in medicine.

RES 5033* Clinical Trials. Fundamentals of clinical trials, including design, conduct, analysis and interpretation of 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.


RES 5052* Grant Writing. Expertise to prepare, write and submit a research grant proposal. This course will assist in identifying relevant resources in order to find funding sources.

RES 5063* Meta-Analysis and Systematic Reviews. 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, presentation, and use of meta-analysis software.

RES 5073* Research Compliance. 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.

Research, Evaluation, Measurement and Statistics (REMS)

REMS 5000* Master’s Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of instructor.

REMS 5013* Research Design and Methodology. 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.

REMS 5320* Seminar in Research, Evaluation, Measurement and Statistics. 3-6 credits, max 6. Prerequisite(s): Consent of instructor. In-depth exploration of contemporary problems of research, evaluation, measurement, and statistics.

REMS 5373* Educational Measurements. 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.

REMS 5953* Statistical Methods in Education. 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.

REMS 5963* Computer Applications in Nonparametric Data Analyses. 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.

REMS 6003* Doctoral Dissertation. 1-25 credits, max 25. Prerequisite(s): Consent of instructor. Required of all candidates for doctorate in applied behavioral studies. Credit given upon completion and acceptance of dissertation.

REMS 6003* Analyses of Variance. Prerequisite(s): 5013 and 5953 and admission to a doctoral level program or consent of instructor. A thorough examination of analysis of variance procedures as they relate to principles of experimental design in education and behavioral sciences.

REMS 6013* Multiple Regression Analysis in Behavioral Studies.

Prerequisite(s): 6003 or consent of instructor. Applications of multiple regression as a general data analysis strategy for experimental and non-experimental research in behavioral sciences.

REMS 6023* Psychometric Theory. Prerequisite(s): 6013 or consent of instructor. 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.

REMS 6033* Factor Analysis in Behavioral Research. Prerequisite(s): 6013 or equivalent. In-depth analysis of principal components and factor analysis methods, including maximum likelihood methods. Confirmatory factor analysis methods are also introduced.

REMS 6320* Doctoral Seminar in REMS. 1-3 credits, max 9. Prerequisite(s): Permission of instructor. Theory and applications of selected advanced research and evaluation methods.

REMS 6373* Program Evaluation. Prerequisite(s): 5013 and admission to a doctoral level program or consent of instructor. Contexts, purposes and techniques of evaluating educational programs. Evaluation design, information collection, analysis, reporting and uses of results for programs ranging from individual lessons to nationwide multi-year projects. Special emphasis on evaluation requirements of federally funded programs.

REMS 6383* Program Evaluation II. Prerequisite(s): 6373. Practical analysis of principles and standards by conducting a program evaluation.

REMS 6663* Applied Multivariate Research in Behavioral Studies. Prerequisite(s): 6013 or consent of instructor. An overview and analysis of multivariate procedures commonly applied to educational and behavioral research. Emphasis on conceptual design and application of these procedures.

REMS 6850* Directed Reading. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading for students with advanced graduate standing.

Russian (RUSS)

RUSS 1115 Elementary Russian I. Lab 1.5. Understanding, speaking, reading, and writing. Method of instruction is audio-lingual. Not for native speakers per University Academic Regulation 4.9.

RUSS 1225 Elementary Russian II. Lab 1.5. Prerequisite(s): RUSS 1115 or equivalent. Continuation of 1115. Not for native speakers per University Academic Regulation 4.9.

RUSS 2115 Intermediate Russian I. Prerequisite(s): RUSS 1225 or equivalent. Continuation of 1225. Russian grammar, composition and conversation. Not for native speakers per University Academic Regulation 4.9.

RUSS 2225 Intermediate Russian II. Prerequisite(s): RUSS 2115 or equivalent. Continuation of 2115. Not for native speakers per University Academic Regulation 4.9.

RUSS 3003 (I.S) The Soviet Union: History, Society and Culture. A comprehensive view of the Soviet Union, stressing those issues of social, political, economic, technological, geographical, and cultural situation. Accessible to beginning undergraduates. (Same course as HIST 3003 & POLS 3003)

RUSS 3053 (I.S) Introduction to Central Asian Studies. 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)

RUSS 3113 Russian Conversation. Prerequisite(s): 2225 or equivalent. Development of conversational skills in formal and informal Russian language; study of oral communication and idioms; vocabulary enhancement.

RUSS 3123 (H) Russian Culture and Civilization. Art, literature, music, architecture, and contemporary life of Russia. Course taught in English.

RUSS 3223 Russian Composition. Prerequisite(s): 2225 or equivalent. The development of all forms of written communication in Russian through practice in writing compositions, letters, reports, and other documents in Russian.

RUSS 4013 Survey of Russian Literature I. Prerequisite(s): 20 credit hours of Russian or equivalent. Survey of Russian literature from its beginning to late nineteenth century with readings in Russian of representative texts. Course conducted in Russian.

RUSS 4023 Survey of Russian Literature II. Prerequisite(s): 20 credit hours of Russian or equivalent. Survey of Russian literature from late nineteenth century to post-Soviet era with readings in Russian of representative texts. Course conducted in Russian.

RUSS 4113 (H) Russian Literature in Translation I. Russian literature from its beginning to mid-19th century: Pushkin, Lermontov, Goncharov, Gogol, Turgeniev, and Dostoevsky. Readings in English. Classes conducted in English.

RUSS 4123 Russian Literature in Translation II. 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.

RUSS 4133 (L) Gay and Lesbian Literature in Russia. This course treats the precarious situation of sexual minorities in Russia, as reflected in prose, poetic and dramatic literary texts invoking alternative lifestyles/sexualities. It brings into focus the unique features of Russian society (a state once governed by a divinely sanctioned authority, later by a totalitarian state, and now rushing in the direction of democracy), as they relate to the real and imagined lives of gay and lesbian literary characters and poetic personae.

RUSS 4223 Russian Reading Skills. Prerequisite(s): 20 hours. Russian or equivalent proficiency. Acquisition of skills in vocabulary enrichment, stylistic analysis and advanced proficiency in reading various styles of contemporary written Russian (newspaper, political, business).

Science and Math Education (SMED)

SMED 1011 Inquiry Approaches to Teaching-Step 1. Prerequisite(s): Interest in exploring teaching as a career. 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 1, students prepare and participate in the teaching of three (3) lessons in elementary classrooms.

SMED 2011 Inquiry-Based Lesson Design-Step 2. Prerequisite(s): SMED 1011 and an interest in exploring teaching as a career. 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.

SMED 3013 Knowing and Learning in Mathematics and Science. Prerequisite(s): SMED 1011 and 2011. 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.

SMED 4013 Classroom Interactions. Prerequisite(s): SMED 1011, 2011, 3013, and full admission to Professional Education. 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.

SMED 4023 Problem-Based Learning in Mathematics and Science. Prerequisite(s): SMED 1011, 2011, 3013, 4013, CIED 4613 or 4003, and full admission to Professional Education. 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.

SMED 4723 Senior Seminar in Secondary Mathematics and Science Education. Prerequisite(s): SMED 1011, 2011, 3013, 4013, 4023, CIED 4613 or 4003, and full admission to Professional Education. Explores classroom management and discipline approaches as well as teacher research, parental involvement, school climate and community relations.

Social Foundations (SCFD)

SCFD 3223 (D) Role of Teacher in American Schools. 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.

SCFD 4123 (B) History of Education. 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.

SCFD 4913 (L) International Issues and the Role of the School. 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.

SCFD 5000 Master’s Report or Thesis. 1-6 credits, max 6. 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.

SCFD 5223 Role of Teacher in American Schools. Prerequisite(s): Graduate level standing. 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.

SCFD 5720 Education Workshop. 1-8 credits, max 8. 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.

SCFD 5850 Directed Study. 1-3 credits, max 3. Directed study for master’s level students.

SCFD 5873 Culture, Society and Education. 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.

SCFD 5883 Educational Sociology. The manner in which social forces and institutions influence education and the educational system in the United States.

SCFD 5913 Introduction to Qualitative Inquiry. Examination of the major approaches and fieldwork techniques of qualitative research as well as the challenges associated with conducting this form of inquiry.

SCFD 5923 Popular Culture and Education. 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.

SCFD 5990 Problems and Issues in Social Foundations. 1-3 credits, max 3. In-depth exploration of a contemporary problem or issue in the social foundations of education.

SCFD 5998 Urban Education. Examines the historical, political, economic and sociocultural contexts of urban education as it pertains to students, teachers, administrators, and community members.

SCFD 6000 Doctoral Dissertation. 1-25 credits, max 25. Required of all candidates for the Doctor of Philosophy degree. Credit is given upon completion of the dissertation.

SCFD 6023 Comparative Education. 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.

SCFD 6113 Theoretical Foundations of Inquiry. Exploration of the history and philosophical assumptions underlying 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.

SCFD 6123 Qualitative Research I. Prerequisite(s): 6113 or consent of instructor. The traditions, philosophies, and techniques of qualitative research, including participant observation, interviewing and document analysis. Practice in qualitative techniques and in preliminary data analysis.

SCFD 6190 Qualitative Research: Selected Methods. 3 credits. Designing and executing a limited study in order to get a “hands-on” feel for the focal method. Methods such as case study, grounded theory, ethnography, biography, historical social science, life history, phenomenology, and discourse analysis.

SCFD 6193 Qualitative Research II. Prerequisite(s): 6123, 6133 or consent of instructor. 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.

SCFD 6443 Ethics and Moral Education. 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.

SCFD 6501 Curriculum and Social Foundations Doctoral Seminar I. Orientation to doctoral study primarily for students in the PhD program in Curriculum and Social Foundations.

SCFD 6511 Curriculum and Social Foundations Doctoral Seminar II. Orientation to the professoriate primarily for students in the Ph.D. program in Curriculum and Social Foundations.

SCFD 6630 Topics in Philosophy Education. 3-6 credits, max 6. Consideration of topic or topics (e.g. childhood and modern subjectivity) that are of great concern to the field of philosophy of education.

SCFD 6823 History of Education. 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.

SCFD 6850 Directed Reading. 1-6 credits, max 6. Directed reading for students with advanced graduate standing to enhance students’ understanding in areas where they wish additional knowledge.

SCFD 6853 Cultural Anthropology in Education. 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.

SCFD 6880 Internship in Education. 1-8 credits, max 8. Directed off campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program.

SCFD 6883 Transforming Pedagogies. Contemporary pedagogical theories and school reform initiatives, including origins, purposes, underlying philosophical assumptions, cultural contexts, and implications for schooling.

SCFD 6910 Practicum. 1-6 credits, max 6. The student carries out an acceptable research problem (practicum) in a local school situation. Credit given upon completion of the written report.

SCFD 6983 Diversity and Equity Issues in Education. 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.

SCFD 6990 Seminar in Social Foundations. 1-3 credits, max 9. In-depth seminar focusing on a contemporary problem or issue in the social foundations of education.

Sociology (SOC)

SOC 1113 (S) Introductory Sociology. 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.

SOC 2123 Social Problems. Exploration in selected social issues in contemporary American society, such as deviance, poverty, sexism, racism and ageism.

SOC 3113 Theoretical Thinking in Sociology. Prerequisite(s): Six credit hours of sociology, including 1113. 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.

SOC 3133 (D,S) Racial and Ethnic Relations. The historical and sociological dimensions of race and ethnicity in global society and understanding of the controversies and conflicts that race and ethnicity have generated in the global experience.

SOC 3213 (D,S) American Society and Culture. The social structure and organization of American society. Approaches to our contemporary national experience through the relational character of ideas and the social and historical experience of their producers.

SOC 3223 (S) Social Psychology. Social basis of personality development and behavior, including symbolic environment, self and group motivation, attitudes and opinions, and social roles.

SOC 3321 Collective Behavior and Social Movements. Analyzes panics, crazes, riots and social movements emphasizing institutional and social psychological origins and consequences.


SOC 3713 Religion, Culture and Society. Recommended: 1113, ANTH 2353, REL 1103. 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)

SOC 3953 Applied Sociology. Prerequisite(s): Sociology majors or consent of instructor. Application of sociological theory and methods to various job situations. Preparation for field experience in a variety of work settings.

SOC 3993 (D,S) Sociology of Aging. Sociological problems of aging, including the analysis of the behavior of the aged within the framework of social institutions.

SOC 4023* Juvenile Corrections and Treatment Strategies. Prerequisite(s): 3523 or 4333. 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.

SOC 4033 (I,S) Comparative Perspectives of Criminal Justice Systems. Study of criminal justice systems in different nation states and culture context from a different comparative perspective.

SOC 4043 (D,S) Gender and Work. Prerequisite(s): One upper division course. 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.

SOC 4133 Social Research Methods. Prerequisite(s): 1113 and 3113. 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.

SOC 4153 Sociology of Health and Illness. Critically analyzes the social production of disease and illness in modern society from a sociological perspective. Examines the social organization of Medicine 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.

SOC 4213 (S) Sexuality in American Society. Prerequisite(s): Junior standing or consent of instructor. Sociological aspects of sexual behavior, attitudes and belief systems in society. Similarities and differences in males and females in all types of sexuality.

SOC 4243 Quantitative Methods in Sociology. Prerequisite(s): 1113, 3113, 4113. Strategies and procedures in the analysis of quantitative sociological data, including the use of statistical computer programs.

SOC 4313 Sociology of Law and Punishment. Focus on issues concerning the relationship between law, punishment and society. Examines both classical and contemporary sociological and legal scholars. Current penal policies will be examined as well.


SOC 4383 (S) Social Stratification. Systems of class and caste, with special attention to the United States. Status, occupation, income, and other elements in stratification.

SOC 4433 (S) Environmental Sociology. 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.

SOC 4443 Sociology of Law and Legal Institutions. Prerequisite(s): 3523 or 4333. Criminal and civil law as mechanisms of social control; conflict and consensus models of legislation; legality doctrine and its application by police, prosecution and defense, courts and administrative agencies of control. Decision processes in the criminal justice system, personnel, case loads, and related areas. Native American law, federal policy and trust status, criminal and civil law, tribal jurisdiction, tribal courts.

SOC 4453 (S) Environmental Inequality. Prerequisite(s): 1113. 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.

SOC 4463 Technology and Society. 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.

SOC 4473 Oklahoma Environmental Sociology. 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 and ownership and use patterns.

SOC 4533 World Population Problems. 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.

SOC 4643 (S) Sociology of Gender. Explores the social organization of gender from diverse theoretical and empirical perspectives using a global experience.

SOC 4653 (I,S) Gender and the Middle East. 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.

SOC 4663 Undergraduate Capstone Seminar in Sociology. Prerequisite(s): Majors; senior standing. 3113, 4133, 4243. Concluding course for Sociology majors. Application of the skills, knowledge and expertise acquired in Sociology, including critical thinking, writing, theory and methods.

SOC 4723 (S) American Marriage, Family and Male-Female Relationships. The sociological relationship between marriage and family and other institutional structures and systems, especially work and the economy. Male and female roles and relationships in mate selection, sexuality, marriage, divorce, and other intimate situations.

SOC 4733 Criminal Behavior Analysis. Prerequisite(s): 3523 or 4333. 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.

SOC 4743 Criminalistics: Introduction to Forensic Sciences. Prerequisite(s): 3523 or 4333. 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 reflective and techniques of crime scene analysis, the student learns how they and technological development impact our social concepts of law and justice.

SOC 4753 Advanced Forensics. Prerequisite(s): 3523 or 4333 and 4743. 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 an awareness of the interdependent relationships of various physical and social science disciplines and how these issues are operationalized at an actual crime scene.

SOC 4850 Internship in Sociology. 1-4 credits, max 4. Prerequisite(s): 3952,
completion of 12 hours of sociology, or consent of internship coordinator. Field experience in a variety of work settings.

SOC 4923 Sociology of Punishment. An overview of correctional work focusing on probation, parole and institutions. A survey of contemporary alternatives to conventional imprisonment.

SOC 4950 Current Topics in Sociology. 1-12 credits, max 12. Special topics in sociology; topics vary from semester to semester.

SOC 4990* Exploration of Sociological Issues. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Examines sociologically significant topics and issues.

SOC 4993 Senior Honors Thesis. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

SOC 5000* Thesis in Sociology. 1-6 credits, max 6.

SOC 5001* Graduate Proseminar. Prerequisite(s): Admission to Sociology graduate program. Introduction and orientation to the graduate program in the Department of Sociology.

SOC 5013* Creative Component in Sociology. A guided course serving as the final requirement for graduate students in the Department of Sociology’s Master of Science degree, non-thesis option.

SOC 5063* Seminar in Social Inequality and Stratification. Prerequisite(s): Graduate standing. 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.

SOC 5113* Classical Sociological Theory. Prerequisite(s): 3113 or equivalent. Major trends in sociological thought. The emergence of sociological theory in Europe and America.

SOC 5123* Contemporary Sociological Theory. Prerequisite(s): 3113 or equivalent. Critical examination of significant theoretical formulations, 1920 to the present. Relation between theoretical development and current research emphasis.

SOC 5213* Techniques of Population Analysis. Prerequisite(s): Graduate standing. 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.

SOC 5223* Culture, History and World Systems. Prerequisite(s): Admission to Graduate College and international studies program. 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*)

SOC 5243* Social Research Design. Prerequisite(s): 3113; 4113 or equivalent; graduate standing. Techniques in design, data collection, and interpretation of data for sociological research.

SOC 5263* Quantitative Analysis of Social Research. Prerequisite(s): 3133; 4113 or equivalent; graduate standing. 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.

SOC 5273* Qualitative Research Methods. Examination of ethnographic studies and implementation issues connected with qualitative research. Research project required.

SOC 5283* Advanced Qualitative Sociological Research. Prerequisite(s): SOC 5273 or consent of instructor. 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.

SOC 5323* Seminar on Collective Behavior and Social Movements. Prerequisite(s): Graduate standing. 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.

SOC 5333* Global Population and Social Problems. Prerequisite(s): Graduate standing. Study in world, regional and national population characteristics, changes and associated problems and cultural influences.

SOC 5343* Sociology of Law and Punishment. Advanced study in the sociology of law and punishment. Focus on classical and contemporary sociological and legal research. An interdisciplinary and comparative approach is also emphasized.

SOC 5463* Seminar in Environmental Sociology. Critical overview of contemporary developments in environmental sociology. Environment concern, disasters, health issues, risk assessment, and environmental conflict.

SOC 5473* Seminar on the Contemporary Environmental Movement. 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.

SOC 5493* Seminar in Environmental Justice. 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.

SOC 5553* Seminar in Medical Sociology. 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.

SOC 5573* Seminar on Victimization. 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.

SOC 5583* Comparative Criminal Justice Systems. Examines crime and criminal justice in a global world. Compares the current major legal traditions with the U.S. criminal justice system.

SOC 5593* Seminar on Organization and Administration in Law Enforcement and Society. Critical overview of contemporary theory and research on administration in law enforcement and society.

SOC 5653* Gender and the Middle East. 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.

SOC 5663* American Pluralism, Race and Ethnicity in American Life. Prerequisite(s): Graduate standing. 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.

SOC 5763* Contemporary Organizational Theory. Prerequisite(s): Graduate standing. Advanced study of contemporary theories used to explain, predict and understand organizations. Behavior of populations of organizations.

SOC 5793* Seminar on Organizational Deviance. 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.

SOC 5813* Myths and Realities of Organizational Change. Prerequisite(s): Graduate standing. A critical examination of the various theories and models that address change and important processes in complex organizations. Theoretical and methodological validity of assumptions underlying such organizational theories and models.

SOC 5950* Seminar in Sociology. 1-3 credits, max 25. Prerequisite(s): Graduate standing. Special seminar; topics vary from semester to semester.

SOC 5980* Internship. 1-6 credits, max 6. Supervised field placement.

SOC 5990* Advanced Problems and Issues in Sociology. 1-9 credits, max 9. Prerequisite(s): Consent of instructor. Group enrollment or individual research enrollment as needed. Graduate level analysis of special problems and issues in sociology not covered in other department offerings.

SOC 6000* Dissertation. 1-12 credits, max 18.

SOC 6213* Theory of Social Structure. Prerequisite(s): Six hours of undergraduate sociology or equivalent. Relationship between human thought and the social context within which it arises.

SOC 6390* Seminar in the Family, Marriage and Male-Female Roles in American Sociology. 2-3 credits, max 6. Analysis of published research in sociology of family, marriage and male-female roles and relationships with special emphasis on American society.

SOC 6460* Advanced Studies in Environmental Sociology. 1-6 credits, max 6. Prerequisite(s): 5463 or consent of instructor. Intensive examination of selected topics in environmental sociology.

SOC 6463* International Issues in Environmental Sociology. Prerequisite(s): Graduate standing. Advanced study of the international context of environmental issues.

SOC 6493* Sociology of Disaster. 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.

SOC 6653* Seminar in Social Psychology. Development and critical analysis
of theory and research in social psychology.

SOC 6673* Development of Social Thought. Historical and analytical studies of major contributions to social thought leading toward the works of modern theorists.

SOC 6753* Seminar in Deviance and Criminology. Current research and theory in criminology, penology and deviance in modern society.

SOC 6763* Seminar in Theory of Criminal Behavior Analysis. Critical overview of contemporary theory and research on criminal behavioral analysis.

SOC 6853* Seminar in Symbolic Interactionism. 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.

SOC 6950* Seminar in Social Gerontology. 2-3 credits, max. 6. A theoretical and practical examination of the sociological implications, both individual and societal, of an aging population.

Soil Science (SOIL)

SOIL 2124 (N) Fundamentals of Soil Science. Lab 2. Prerequisite(s): CHEM 1215. Principal physical, chemical and biological properties of the soil related to plant growth; soil testing and fertilizer usage; formation and classification of soils, rural and urban land use.

SOIL 3433* Soil Genesis, Morphology, and Classification. Lab 3. Prerequisite(s): 2124. 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 soil land use planning and land management.


SOIL 4210* Describing and Interpreting Soils. 1 credit, max. 3, Lab 3. Prerequisite(s): 2124. Describe and classify soil properties in the field and interpret for suitable agriculture, urban, and other land uses.

SOIL 4213* Precision Agriculture. Lab 2, Prerequisite(s): MATH 1513, senior standing. Introduction to the concepts of precision agriculture including analysis of spatial variability, relationships of climate 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*)

SOIL 4234* Soil Nutrient Management. Lab 2. Prerequisite(s): 2124. Soil fertility and use of fertilizer materials for conservation, maintenance, and improvement of soil productivity and to minimize environmental concerns.

SOIL 4363* Environmental Soil Science. Prerequisite(s): BIOI 1114 and SOIL 2124. Re-emphasis of soil science concepts vital in the understanding of processes that are essential in the realm 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*)

SOIL 4463* Soil and Water Conservation. Prerequisite(s): SOIL 2124. 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 ecosystems. Understand the principles of hydrologic cycle to improve water use efficiency of precipitation and irrigation resources. Examine resource mismanagement that have resulted in desertification, salinization and deforestation.

SOIL 4470* Problems and Special Study. 1-3 credits, max 12, Lab 1-3. Prerequisite(s): Consent of the instructor. Problems in soil science selected from topics in soil chemistry and fertility, soil physics, soil biology, soil conservation, and soil morphology.

SOIL 4483* Soil Microbiology. Prerequisite(s): 2124 and BIOI 1114 or consent of instructor. An overview of microorganisms living in the soil and their activities which are significant to agricultural practices and the environment. No credit for both 4483 and 5383.

SOIL 4563* Dynamics of Wetland, Forest and Rangeland Soils. Prerequisite(s): 2124. Dynamics of soils that receive minimal or no production input. Identification of wetland soils and the biogeochemical reactions occurring in wetland soil environments. Nutrient cycling, physical, chemical, and biological properties of forest and rangeland soil systems.

SOIL 4571 Professional Preparation in Plant and Soil Sciences. Prerequisite(s): Senior standing in plant and soil sciences. Preparation for professional certification exams and career opportunities in plant and soil sciences. (Same course as PLNT 4571)

SOIL 4683* Soil, Water and Weather. Prerequisite(s): 2124 and PHYS 1114. 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.

SOIL 4893* Soil Chemistry and Environmental Quality. Prerequisite(s): 2124 and CHEM 1225. Chemical and colloidal properties of clays and organic matter in soil systems, including ion exchange, retention, and precipitation; soil acidity and salinity; mineral weathering and formation; oxidation-reduction reactions; trace and toxic elements, water quality, land application of wastes, and soil remediation.

SOIL 4913* Animal Waste Management. Prerequisite(s): 2124. Aspects of animal waste management related to animal nutrition, system design, land application, socioeconomic issues and environmental impacts. (Same course as ANSL 4913 and ENVR 4913)

SOIL 5000* Master’s Thesis. 1-6 credits, 6 max total credits under Plan I and 2 max total credits under Plan II. Prerequisite(s): Consent of adviser. Research planned, conducted and reported in consultation with a major professor.

SOIL 5020* Graduate Seminar. 1 credit, max. 3. Prerequisite(s): Graduate standing. Discussions of research philosophy, methods, interpretation, and presentations. Profession development and contributions to the scientific community. (Same course as PLNT 5020)

SOIL 5110* Problems and Special Study. 1-4 credits, max. 12. Prerequisite(s): Consent of instructor. Supervised study of special problems and topics not covered in other graduate courses.

SOIL 5112* Research Methods in Plant and Soil Sciences. Prerequisite(s): Graduate standing. Exploration of various methodologies helpful in field scale research. Application and understanding biometry as it relates to research result interpretation.

SOIL 5223* Soil Chemical Processes and Impact on Environmental Quality. Prerequisite(s): 4893 and CHEM 2113 or CHEM 3324 or equivalent. 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.

SOIL 5230* Research. 1-4 credits, max. 8. Prerequisite(s): Consent of a faculty member supervising the research. Supervised independent research on selected topics.

SOIL 5353* Advanced Soil Genesis and Classification. Lab 2. Prerequisite(s): 3433. Processes and factors of soil formation. Comparison of soil morphology and classification systems.

SOIL 5383* Advanced Soil Microbiology. Prerequisite(s): 2124 and BIOI 1114 or consent of instructor. 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 5383.

SOIL 5453* Soil and Water Quality in Bioenergy Feedstock Production Systems. Prerequisite(s): 4573 or instructor consent. Evaluate impact of bioenergy feedstock production systems on soil and water quality. Current research results related to biomass removal and by-product addition to soils will be evaluated. Course available online only.

SOIL 5483* Soil Biodegradation and Bioremediation. Prerequisite(s): 4483. A comprehensive overview of microorganisms living in soil and their activities of agricultural and environmental significance, emphasizing their roles in improving soil quality, and biodegradation and bioremediation of soil.

SOIL 5553* Soil Physics Measurement Techniques. Lab 2. Prerequisite(s): 4683. 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.

SOIL 5613* Laboratory Methods of Soil, Plant and Environmental Analysis. Lab 4. Prerequisite(s): SOIL 4893 and CHEM 2113 or 3324 or equivalent. Methods in soil and environmental sample analysis. Presentation and discussion of the theory behind chemical analysis of soils, plants, and waste materials for agricultural and environmental purposes. Hands-on laboratory analysis of personal soil samples. Theory and practices of common laboratory techniques and equipment/ instrumentation such as colorimeter, spectrophotometry, charge analysis of soils, forms of acidity, phosphorus extraction and behavior, ICP-AES. The course is heavily lab based.

SOIL 5813* Soil-Plant Nutrient Cycling and Environmental Quality. Prerequisite(s): 4234 or equivalent. Theory and application of soil plant relationships in production and non-production environments. Nutrient cycling, mass balance, soil nutrient supply and plant response. Methods to reduce the impact of nutrients on environmental quality, soil-plant buffering and response models.

SOIL 5990* Soil Physical Analyses. 1-2 credits, max 2. Prerequisite(s): 4683. Principles and techniques.

SOIL 6000* Doctoral Thesis. 1-6 credits, max 36. Prerequisite(s): Consent of instructor. Independent research to be conducted and reported with the supervision of a major professor as partial requirement for the PhD degree.

SOIL 6010* Advanced Topics and Conference. 1-6 credits, max 12. Prerequisite(s): MS degree. Supervised study of advanced topics. A reading and
conference course designed to acquaint the advanced student with fields not covered in other courses.

SOIL 5853* Soil Physics Theory. Prerequisite(s): 4683 or equivalent and MATH 2233 or equivalent. 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.

Spanish (SPAN)

SPAN 1115 Elementary Spanish I. Pronunciation, conversation, grammar, and reading. Includes language lab work. Students may not receive credit for both this course and SPAN 1153. Not for native speakers per University Academic Regulation 4.9.

SPAN 1153 Accelerated Elementary Spanish I. Prerequisite(s): 1-2 years high school Spanish or equivalent. Accelerated presentation of basic skills of the Spanish language for students with previous experience, but who are not yet ready for SPAN 1225. Students may not receive credit for both this course and SPAN 1115. Not for native speakers per University Academic Regulation 4.9.

SPAN 1225 Elementary Spanish II. Prerequisite(s): 1115 or equivalent. Continuation of 1115. Includes language lab work. No credit for students with credit in 1253. Not for native speakers per University Academic Regulation 4.9.

SPAN 1253 Accelerated Elementary Spanish II. Prerequisite(s): 3-4 years high school Spanish or equivalent. Accelerated presentation of the second phase of Spanish language skills for students with previous experience, but who are not yet ready for SPAN 2115. No credit for students with credit in 1225. Not for native speakers per University Academic Regulation 4.9.

SPAN 2115 Intermediate Spanish I. Prerequisite(s): 1225 or equivalent. 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.

SPAN 2232 Intermediate Reading and Conversation. Prerequisite(s): 2115 or equivalent. Skill consolidation with emphasis on short literary readings ad conversation. May be taken concurrently with 2233. Not for native speakers per University Academic Regulation 4.9.

SPAN 2233 Intermediate Composition and Grammar. Prerequisite(s): 2115 or equivalent. Skill consolidation with emphasis on composition and grammar with some conversation. May be taken concurrently with 2232. Not for native speakers per University Academic Regulation 4.9.

SPAN 3013 Survey of Latin-American Literature. Prerequisite(s): 20 hours of Spanish or the equivalent. Development of the literary written in Spanish in the new world.

SPAN 3023 Survey of Peninsular Literature I. Prerequisite(s): 20 credit hours of Spanish or equivalent. Development of literature in Spain from the medieval period to 1700.

SPAN 3033 Survey of Peninsular Literature II. Prerequisite(s): 20 hours of Spanish or the equivalent. Development of literature in Spain from 1700 to the present.

SPAN 3053 Introduction to Hispanic Literary Studies. Prerequisite(s): 2232 and 2233 or equivalent. Introduction to techniques of literary analysis and research in Spanish and to Hispanic literary history. Prerequisite for all advanced literature courses in Spanish.

SPAN 3203 Advanced Conversation. Prerequisite(s): 20 credit hours of Spanish or equivalent proficiency. Practice in conversation skills, designed to bring students to a high level of proficiency in speaking and listening. Classes conducted in Spanish.

SPAN 3213 Advanced Grammar and Composition. Prerequisite(s): 20 hours of Spanish or equivalent proficiency. Study of advanced grammar and stylistics with emphasis on composition skills, designed to bring students to a high level of proficiency in writing.

SPAN 3463 Advanced Diction and Phonetics. Lab 1. Prerequisite(s): 2232 and 2233, or equivalent. Required course for teacher certification/licensure. Spanish speech sounds and intonation patterns, with practice to improve the student's pronunciation.

SPAN 4123 Hispanic Poetry. Prerequisite(s): 3013 or 3023 or 3033. Detailed study of representative poetry from Spain or Latin America.

SPAN 4133 Hispanic Prose. Prerequisite(s): 3013 or 3023 or 3033. Detailed study of representative prose works from Spain or Latin America.

SPAN 4163 Don Quixote. Prerequisite(s): 3013 or 3023 or 3033. Seminar devoted to Cervantes' novel.

SPAN 4173 Hispanic Drama. Prerequisite(s): 3013 or 3023 or 3033. Reading and interpretation of dramatic works selected from the Hispanic literatures.

SPAN 4183 Spain and Islam. Prerequisite(s): 3013 or 3023 or 3033. 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.

SPAN 4223 Contemporary Hispanic Literature. Prerequisite(s): 3013 or 3023 or 3033. Major Hispanic writers since 1900.

SPAN 4253 Masterpieces of Hispanic Literature I. Prerequisite(s): 3013 or 3023 or 3033. Reading and analysis of classics selected from the Hispanic literatures.

SPAN 4263 Masterpieces of Hispanic Literature II. Prerequisite(s): 3013 or 3023 or 3033. Reading and analysis of classics selected from the Hispanic literatures.

SPAN 4323 Spanish Peninsular Civilization. Prerequisite(s): 23 credit hours of Spanish or equivalent. Reading and discussion of selected texts outlining the development of contemporary Spanish Peninsular civilization.

SPAN 4333 Latin American Civilization. Prerequisite(s): 23 credit hours of Spanish or equivalent. Reading and discussion of selected texts outlining the development of contemporary Hispanic civilization outside the Iberian peninsula.

SPAN 4413 Advanced Stylistics. Prerequisite(s): 3213. Continuation of 3213, emphasizing further development of grammar and composition in a variety of contexts.

SPAN 4550 Seminar in Spanish. 1-3 credits, max 9. Prerequisite(s): One 3000-level Spanish course, or equivalent. Readings and discussion of vital subjects in Spanish.

SPAN 5110* Advanced Hispanic Studies. 1-3 credits, max 9, Lab TBA. Prerequisite(s): 22 hours of Spanish or graduate standing in foreign language.

Special Education (SPED)

SPED 3202 (D) Educating Exceptional Learners. Lab 2. Learning characteristics, needs and strategies 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.

SPED 4723* Transition Into Adulthood for Individuals with Disabilities. Strategies for preparing youth and young adults with disabilities for transitioning into adulthood.

SPED 4753* Techniques of Behavior Management and Counseling with Exceptional Individuals. Techniques to develop and evaluate programs of behavior change for exceptional students including counseling with the exceptional individual and conferencing with professionals and parents.

SPED 5000* Master's Thesis. 1-6 credits, max 6.

SPED 5123* Characteristics and Teaching Methods for Students with Autism Spectrum Disorders. Prerequisite(s): Graduate standing or permission of instructor. 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.

SPED 5150* Seminar in Special Education. 1-6 credits, max 6. Seminar topics will differ depending on interests and topics regarding Special Education.

SPED 5320* Seminar in Applied Behavioral Studies. 3-9 credits, max 9. In-depth exploration of contemporary problems and applications in behavioral studies.

SPED 5573* Communication Strategies for Individuals with Severe and Profound Disabilities. Methods for communicating with severely or profoundly disabled persons and for facilitating their communication through speech, sign, assistive devices and technology.

SPED 5620* Practicum with Exceptional Learners. 1-8 credits, max 8, Lab 1-8. Prerequisite(s): Consent of instructor. 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.

SPED 5623* Characteristics of Students with Mild/Moderate Disabilities. 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.

SPED 5633* Behavior Characteristics of Exceptional Individuals. Individual differences and problems that exceptional individuals experience. Educational problems and resources available, assist administrators, teachers and parents in dealing with unique individual needs.

SPED 5643* Counseling Parents of Exceptional Children. Aiding the classroom teacher and other professional personnel in the understanding of unique activities and interpersonal relations involved in counseling with parents of exceptional children.

SPED 5653* Play Therapy in Special Education. Theories and practices of the principles of play therapy. The application of play therapy for special education children. Supervised clinical experience with children with emotional, social and psychological problems.

SPED 5673* Improving Literacy Skills of Individuals with Disabilities. 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

2014-2015 University Catalog
language training, formal and informal; assessment techniques and techniques for exceptional individuals.

SPED 5683* Models of Instruction in the Inclusive Classroom. Current techniques, models and approaches used to teach students with mild and moderate disabilities and the theoretical bases for these techniques and approaches in inclusive classrooms. Professional roles of the teacher of students with mild and moderate disabilities, including communication with other teachers.

SPED 5733* Teaching Strategies for Students with Physical and Health Disabilities. Prerequisite(s): 5523 and graduate student standing. Design and implementation of educational programs, collaboration with families and other professionals, and advocacy for students with disabilities.

SPED 5743* Planning and Instruction in Special Education. Knowledge and skills related to research-based, validated “best” practices for determining curriculum and implementing instruction for students with exceptionalities.

SPED 5783* Assessing Students with Disabilities. The practice and practicality of the assessment process used in schools for students with disabilities.

SPED 5883* Classroom and Behavior Management. Classroom and behavior management strategies designed to improve learning and behavior within instructional settings.

SPED 5993* Culturally Responsive Teaching in Special Education. Examination of the influence of ethnic, socioeconomic class, and gender factors on students with disabilities. Ethnographic inquiry through Service-Learning field placements for understanding cultural diversity and special education. Teaching attitudes and expectations, and curricular and instructional strategies for improving students’ school performance.


SPED 6183* Legal Aspects in Special Education. 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.

SPED 6543* School and Interagency Collaboration. Prerequisite(s): Graduate student status or instructor permission. 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.

SPED 6603* Current Trends and Issues in Special Education. Current research and literature regarding the education of exceptional children.

SPED 6743* Single Subject Design in Special Education. Prerequisite(s): Permission of instructor. 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.

SPED 6850* Directed Reading. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading for students with advanced graduate standing.

SPED 6880* Internship in Education. 1-8 credits, max 8. Lab 3-24. Directed off-campus experiences designed to relate ideas and concepts to problems encountered in the management of the school program.

Speech Communication (SPCH)

SPCH 2713 (S) Introduction to Speech Communication. Principles and techniques of preparing for, participating in and evaluating communication behavior in the conversation, the interview, group discussion and the public speech. A competency-based approach.

SPCH 3703 Small Group Communication. 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.

SPCH 3723 Business and Professional Communication. Oral communication encounters in business and professional settings. The interview, informative briefing, talking-paper, small group interaction and informative, integrative and persuasive speeches.

SPCH 3733 (S) Elements of Persuasion. Principles and concepts of interpersonal and public persuasive encounters. The instrumental and interactive nature of persuasion. Designing and participating in actual persuasive campaigns.

SPCH 3743 Advanced Public Speaking. The preparation and delivery of various types of public speeches.

SPCH 3793* Communication in Interviews. General principles of interviewing. Specific guidelines for the interviewer in survey, journalistic, counseling, selection, appraisal, legal, medical, and sales interviews.

SPCH 4010 Independent Study in Speech Communication. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Supervised research projects in speech communication.

SPCH 4710 Topics in Speech Communication. 1-3 credits, max 6. Selected current topics in speech communication.

SPCH 4743* Problems of Interpersonal Speech Communication. 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.

SPCH 4753 (I) Intercultural Communication. Social and cultural differences between individuals from diverse backgrounds as possible barriers to effective communication.

SPCH 4763 Organizational Communication. The interface between communication theory and organizational structure. Nature of communication problems in organizations, strategies for overcoming such problems and the development of effective communication systems in organizations.

SPCH 4793 (S) Nonverbal Communication. Nonverbal aspects of speech communication.

Sports Media (SPM)

SPM 2843* Sports and the Media. Prerequisite(s): Departmental majors only. The introductory course for sports media majors. Sports is a major industry in the United States today, and this course is designed to study that industry and the opportunities for and responsibilities of the journalists who cover it. Topics covered include the evolving sports media, sports media relations, ethics and the sports media, racial and gender issues in sports and the media, and multimedia sports journalism in the 21st century.

SPM 3500* Sports Media Internship. 1-3 credits, max 6. Prerequisite(s): MMJ 3263 and 3153 or SC 3353 and 3753 with a grade of “C” or better and consent of instructor; and a minimum grade of 70 on the Language Proficiency Exam. Internship practice for qualified sports media students who wish creative communications experience beyond that available in the classroom.

SPM 3783 Sports Public Relations. Prerequisite(s): SPM 2843 and MC 2003 and MC 2023 and SC 2163 with a grade of “C” or better in each; and a minimum grade of 70 on the Language Proficiency Exam. Provides an overview and introduction to the practice of public relations within the sport industry. The primary focus of the course is the role of public relations in all aspects of sport, fundamentals of sport publicity and promotional campaigns.

SPM 3813 Sports Reporting Across the Media. Lab 2. Prerequisite(s): MC 2003 and 2023 with a grade of “C” or higher in both; and a minimum grade of 70 on the Language Proficiency Exam. This course provides an introductory writing course specifically for aspiring professionals of major sectors of the sport media industry (i.e., television, internet sites, public relations, newspapers, radio, television and magazines). Students learn the basics of game summaries, keeping accurate statistics, conducting interviews, structuring stories, incorporating quotes in sports media content, all while adhering to AP style and ethical standards of journalism and communications professionals.

SPM 3843 Contemporary Sports Media. Prerequisite(s): MC 2003 and 2023 and both with a grade of “C” or better in each; and a minimum grade of 70 on the Language Proficiency Exam. Current topics in speech communication.

SPM 3853 Advanced Sports Writing. Lab 2. Prerequisite(s): SPM 2843 and 3813 and MMJ 3263 with a grade of “C” or better in each; and a minimum grade of 70 on the Language Proficiency Exam. 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.

SPM 3863 Electronic Sports Reporting. Lab 2. Prerequisite(s): MMJ 3263 with a grade of “C” or better, MMJ 3153 or concurrent enrollment; and a minimum grade of 70 on the Language Proficiency Exam. Introduces students to various types of radio and television sports stories in the media. Students will learn to write in the aural style for broadcast/Web cast format. The course will emphasize other performance situations, such as producing and anchoring radio and television sportscasts. Students will be graded based on a combination of projects and testing.

SPM 4053* Sports Announcing. Lab 2. Prerequisite(s): 3153 and 3863 with a grade of “C” or better or concurrent enrollment in both; and a minimum grade of 70 on the Language Proficiency Exam. Focuses on the theory and practice of electronic media sports coverage, with an emphasis on the role, skills and practices of radio and TV sports announcers and electronic sports media journalism. The class includes play-by-play broadcasts and a class project.

SPM 4560* Specialized Sports Media Applications. 3 credits, max 6. Prerequisite(s): SPM 2843 and SC 3353 or MMJ 3263 or MMJ 3153 with a grade of “C” or better; and a minimum grade of 70 on the Language Proficiency Exam. Specialized sports media at an advanced level. Special topics in areas such as sports media production, announcing, promotion; 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.
SPM 4813  Sports Media Production. Lab 2. Prerequisite(s): 2843 and MMJ 3263 and MMJ 3913 with a grade of “C” or better; and a minimum grade 70 on the Language Exam. After completing this course students will be able to develop, write, pre-produce, produce, perform as talent and post-produce programming for broadcast sports media. By becoming proficient with specific production and performance techniques, you will be qualified to pursue an internship and/or employment with a media organization.

SPM 4883  Sports in the Newsroom. Lab 2. Prerequisite(s): 3863 and either 3853 or 4813 each with a grade of “C” or higher, grade of 70 or better on Language Exam. This 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.

SPM 4933  Advanced Sports Public Relations. Prerequisite(s): SPM 3783 and SC 3953 and 3353 with “C” or better in each; and a minimum grade of 70 on the Language Proficiency Exam. Capstone course providing a study of relevant issues practitioners face in today's sports industry. Covers the scope and effect of sports on society and culture.

Statistics (STAT)

STAT 2013  (A)  Elementary Statistics. Prerequisite(s): MATH 1483 or 1513. An introductory course in the theory and methods of statistics. Descriptive measures, elementary probability, sampling, estimation, hypothesis testing, correlation and regression. No degree credit for students with credit in 2023 or 2053.

STAT 2023  (A)  Elementary Statistics for Business and Economics. Prerequisite(s): MATH 1483 or 1513. 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. No degree credit for students with credit in 2013 or 2053.

STAT 2053  (A)  Elementary Statistics for the Social Sciences. Prerequisite(s): MATH 1483 or MATH 1513. No credit for business majors. An introductory course in the theory and methods of statistics. Descriptive measures, elementary probability, sampling, estimation, hypothesis testing, correlation and regression. No degree credit for students with credit in 2013 or 2053.

STAT 2331  SAS Programming. Prerequisite(s): A different programming language or consent of instructor. SAS as a general purpose programming language, data representation, input/output, use of built-in procedures, report generation.

STAT 3013  Intermediate Statistical Analysis. Prerequisite(s): 2013, 2023 or 2053. Applications of elementary statistics, introductory experimental design, introduction to the analysis of variance, simple and multiple linear regression, nonparametric statistics, sample surveying and time series. Data analysis using Excel included.

STAT 4013  (A)  Statistical Methods I. Prerequisite(s): 60 credit hours including MATH 1513. 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-factor crossed nested classification. No degree credit for students with credit in 4053.

STAT 4023  Statistical Methods II. Prerequisite(s): 3013 or 4013 or 4033 or 4053. 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. No degree credit for students with credit in 4053.

STAT 4033  Engineering Statistics. Prerequisite(s): MATH 2163. Probability, random variables, probability distributions, estimation, confidence intervals, hypothesis testing, linear regression. No degree credit for students with credit in STAT 4073.

STAT 4043  Applied Regression Analysis. Prerequisite(s): One of 4013, 4033, 4053, 5013 or consent of instructor. Matrix algebra, single linear regression, residual analysis techniques, multiple regression, dummy variables.

STAT 4053  (A)  Statistical Methods I for the Social Sciences. Prerequisite(s): MATH 1513. 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. No degree credit for students with credit in STAT 4013.

STAT 4063  Statistical Methods II for the Social Sciences. Prerequisite(s): 3013 or 4013 or 4033 or 4053. Basic concepts of experimental design. Analysis of variance, covariance, split-plot design. Factorial arrangements of treatments, multiple and curvilinear regression, enumeration data. No degree credit for students with credit in STAT 4023.

STAT 4073  Engineering Statistics with Design of Experiments. Prerequisite(s): MATH 2163. 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.

STAT 4091  SAS Programming. Prerequisite(s): 4013 or equivalent. SAS dataset construction, elementary statistical analysis, and use of statistics and graphics procedures available in SAS. No credit for students with credit in 5091.

STAT 4203  Mathematical Statistics I. Prerequisite(s): MATH 2163 with a grade of “C” or better. Introduction to probability theory for students who are not graduate majors in statistics or mathematics. Probability, independence and dependence, random variables, univariate distributions, multivariate distributions, moments, functions of random variables, moment generating functions.

STAT 4213  Mathematical Statistics II. Prerequisite(s): 4203 and MATH 3013. Statistical inference for students who are not graduate majors in statistics or mathematics. Sampling distributions, maximum likelihood methods, point and interval estimation, hypothesis testing.

STAT 4910  Special Studies. 1-6 credits, max. 6. Prerequisite(s): Consent of instructor. Special subjects in statistics.

STAT 4991  Statistics Capstone. Prerequisite(s): STAT 4023, 4043, 4091, and 4033 or concurrent enrollment. Career skills for statistics undergraduates, entering the workforce, communication skills for collaborating with scientists, graduate school preparation.

STAT 4993  Senior Honors Project. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

STAT 5000  Master’s Research. 1-6 credits, max. 6. Prerequisite(s): Consent of advisory committee. Methods of research and supervised thesis or report.

STAT 5003  Statistics for Medical Residents. Prerequisite(s): Employed as a medical or veterinary resident or permission of instructor. 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 as course BIOM 5003).

STAT 5013  Statistics for Experimenters I. Prerequisite(s): Graduate standing and MATH 1513. Introductory statistics course for graduate students. Descriptive statistics, basic probability, probability distributions, fundamentals of statistical inference, hypothesis testing, regression, one-way classification, analysis of variance, comparative experiments, correlation and linear regression, introduction to categorical data analysis.

STAT 5023  Statistics for Experimenters II. Prerequisite(s): Graduate standing and 4023 or 5013. Analysis of variance, covariance, use of variance components and their estimation, completely randomized, randomized block and Latin square designs, multiple comparisons.

STAT 5033  Nonparametric Methods. Prerequisite(s): One of 4023, 4043, 5013 or consent of instructor. A continuation of 4013 and 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.

STAT 5043  Sample Survey Designs. Prerequisite(s): One of 4013, 4033, 5013 or consent of instructor. Constructing and analyzing personal, telephone and mail surveys. Descriptive methods including sampling variance, random designs. Questionnaire design, frame construction, non-sampling errors, use of random number tables, sample size estimation and other topics relevant to practical conduct of surveys.

STAT 5053  Time Series Analysis. Prerequisite(s): 4043. An applied approach to analysis of time series in the time domain and the frequency domain. Descriptive techniques, probability models for time series, autoregressive processes and forecasting. Box-Jenkins methods, spectral analysis and use of computers.

STAT 5063  Multivariate Methods. Prerequisite(s): 4043 and 4023 or 5023. Use of Hotelling’s T-squared statistic, multivariate analysis of variance, canonical correlation, principal components, factor analysis and linear discriminant functions.

STAT 5073  Categorical Data Analysis. Prerequisite(s): 5223, 5023 or equivalent or concurrent enrollment. Analysis of data involving variables of a categorical nature. Contingency tables, exact tests, binary response models, loglinear models, analyses involving ordinal variables, multimonial response models. Computer usage for analysis is discussed.

STAT 5083  Statistics for Biomedical Researchers. Prerequisite(s): STAT 5013. 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.

STAT 5091  SAS Programming. Prerequisite(s): 5013 or equivalent. SAS dataset construction, elementary statistical analysis, and use of statistics and graphics procedures available in SAS. No credit for students with credit in 4091.

STAT 5093  Statistical Computing. Prerequisite(s): 5123 or 4033 or 4053 or equivalent. STAT 5091 or consent of instructor. A continuation of 4013 and 4023, concentration of maximum likelihood estimators, quasi-likelihood estimators, probabilities, and quantities; computer intensive exact tests and distributions.
randomized tests; bootstrap and jack knife methods, Monte Carlo simulations
Markov Chain Monte Carlo methods for Bayesian estimation.

STAT 5123* Probability Theory. Prerequisite(s): MATH 2163 and one other
course in MATH that has either 2144 or 2153 as a prerequisite. Basic probability
theory, random events, dependence and independence, random variables,
 moments, distributions of functions of random variables, weak laws of large
numbers and central limit theorem.

STAT 5133* Stochastic Processes. Prerequisite(s): 5123 and MATH 2233:
MATH 3013. 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*)

STAT 5213* Bayesian Decision Theory. Prerequisite(s): 5223. Statistical
spaces, decision spaces, loss and risk, minimum risk decisions, conjugate families of distributions, Bayesian decisions.

STAT 5223* Statistical Inference. Prerequisite(s): 5123 and MATH 3013.
Sampling distributions, point estimation, maximum likelihood methods,
Rao-Cramer inequality, confidence intervals, hypothesis testing, sufficiency,
completeness.

STAT 5303* Experimental Design. Prerequisite(s): 5023 or 4023 with
consent of instructor. Review of basic concepts and principles of comparative
experiments: the role of randomization in experimentation, interpretation of
experimental effects and interactions in multi-factor designs, error term selection principles,
multiple comparisons, split-unit experiments, incomplete block designs,
confounding of factorial effects in 2n and 3n series of factorials, single and
fractional replication: applications of optimum seeking designs, pooling of experiments over
time and space, crossover and switch back designs.

STAT 5323* Theory of Linear Models I. Prerequisite(s): 5223, and MATH 3013,
and one of 4023 or 5023. Multivariate normal distributions of quadratic forms,
general linear models, Markov theorem, variance components, general
linear hypotheses of full rank models.

STAT 5333* Theory of Linear Models II. Prerequisite(s): 5323. Maximum
likelihood estimation; missing data structures; balanced incomplete block design;
less than full rank models; general mixed models; general linear models of full rank.

STAT 5513* Multivariate Analysis. Prerequisite(s): 5323, and MATH
3013, and one of 4023 or 5023. Multivariate normal distributions,
simple, partial and multiple correlation, multivariate sampling
distribution, point estimation, maximum likelihood methods,
applications.

STAT 5603* Advanced Statistical Inference. Prerequisite(s): 5323. Point
estimation, maximum likelihood, Rao-Cramer inequality, confidence intervals, hypothesis testing, sufficiency,
completeness.

STAT 5613* Probability Theory. Prerequisite(s): 5123 and MATH 5143.
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.

STAT 6203* Large Sample Inference. Prerequisite(s): 5223 and 6113.
Different types of convergence in probability theory, central limit theorem,
consistency, large sample estimation and tests of hypotheses, concepts of
asymptotic efficiency, nonparametric tests.

STAT 6223* Advanced Statistical Inference. Prerequisite(s): 6113. Point
estimation, maximum likelihood, Neyman-Pearson theory of testing hypothesis and
test of power of test.

STAT 6910* Special Problems. 1-6 credits, max 12. Prerequisite(s): Consent
of instructor. Investigation of special problems in the theory and application of
statistics using current techniques. Special studies for PhD level students.

Strategic Communication (SC)

SC 2183 Introduction to Strategic Communications. Prerequisite(s):
Departmental majors only. This course provides students with information
and insights about strategic communications: how messages are created and
framed, why we respond to messages the way we do, and how to employ
communications strategies to advance organizational goals. The course will
address the media, methods, functions and ethics of institutions’ communication
and interactions with a variety of audiences with an emphasis on public relations
and advertising.

SC 3003 Media Writing for Strategic Communication. Lab 2. Prerequisite(s):
ENGL 1213, 1223 or 1413 with a grade of "C" or higher. For SC majors only.
Teaches writing skills vital to a career in strategic 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
help language accurate and useful background information from traditional and
online sources. Introduces students to the fundamentals of writing styles and objectives
required to convey information in different media. No credit for students with
credit in MC 2003.

SC 3353 Persuasive Writing for Strategic Communicators. Lab 2.
Prerequisite(s): MC 2003 and MC 2023 and SC 2013 or 2183 with a grade of
"C" or better in each; and a minimum grade of 70 on the Language Exam.
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.

SC 3383 Strategic Communications Management and Strategies.
Prerequisite(s): SC 2003 and 2023 with Cs or better, SC 2163 with "C" or
better, minimum grade of 70 on Language Exam. The practice and techniques of
public relations as a management function in business, industry, agriculture,
government, education and other fields.

SC 3443 Social Media. Prerequisite(s): MC 2003 and MC 2023 and SC 2013
or SC 2183 with a grade of "C" or better in each; and a minimum grade of 70
on Language Exam. The practice and application of social media such as
Facebook, MySpace, Twitter and other social networking sites to public relations
practice.

SC 3600 Strategic Communications Internship. 1-3 credits, max 6.
Prerequisite(s): 3353 and 3753 with a grade of "C" or better in both and consent
of instructor; and a minimum grade of 70 on the Language Exam. Internship
practice for qualified strategic communications students who wish
creative communications experience beyond that available in the classroom.

SC 3603 Copywriting and Creative Strategy. Lab 2. Prerequisite(s):
3353 and 3753 with "C" or better in both; and a minimum grade of 70 on the
Language Exam. Emphasis on creative strategy in the context of an
advertising campaign. Focus on the “Big Idea” with in-depth skills development
in advertising copywriting across all media and formats.

SC 3753 Graphic Design for Strategic Communication. Lab 2.
Prerequisite(s): MC 2003 and MC 2023, and SC 2013 or SC 2183 with a grade of
"C" or better in each; and a minimum grade of 70 on the Language Exam.
An analysis and application course focused on designing elements used in strategic
communication to include both traditional media and new media. Creative
and practical aspects of typography, layout and design. Lab component offers
hands-on instruction and skills development.

SC 3953 Research Methods for Strategic Communicators.
Prerequisite(s): MC 2003 and MC 2023 and SC 2013 or SC 2183 with a grade of
"C" or better in each; and STAT 2013 or 2053; and a minimum grade of 70 on the Language Exam.
Provides an overview of strategic communication research, with an emphasis on its application to the development and evaluation of the strategic
communication message. Audience and media research are studied, and
primary and secondary information sources are employed. Procedures for
conducting a research project are outlined, and students participate in the
research and planning process, the gathering of primary data, and the analysis
and presentation of results.

SC 4013 Media and Markets. Prerequisite(s): MC 2003 with a grade of "C"
or better, 2013 or 2183 with a grade of "C" or better; and a minimum grade of 70
on Language Proficiency Exam. Introduction to the strategic use of media.
Major principles of media planning and buying, audience measurement, media
research, new media technology, and market segmentation.

SC 4223 Media Sales and Marketing. Prerequisite(s): MC 2003 and MC
2023 with a grade of "C" or better in both; and a minimum grade of 70 on the
Language Exam. The primary focus of this course is to learn to sell advertising
to both the client and the audience and gain insight into the professional sales process. The 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.

SC 4383 Media Relations. Prerequisite(s): Senior standing, minimum
graduation/retention GPA of 2.5. 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
media interviews. Meets with MC 5383. No credit for students with credit in MC
5383. Introduction to the practice.

SC 4493 Advanced Public Relations Writing. Lab 2. Prerequisite(s): 3353
and 3753 both courses with "C" or better; minimum grade of 70 on Language Exam.
An advanced application course in creating, planning, researching,
writing, editing and designing of multimedia materials used in public relations
campaigns and communication.

SC 4520 Specialized Strategic Communication Applications. 3 credits, max 6. Prerequisite(s): 3353 and 3753 with a grade of "C" or better in both;
and a minimum grade of 70 on the Language Exam. 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.

SC 4653*  Integrated Marketing Communication. Prerequisite(s): MC 2003 and MC 2023, and SC 2013 or SC 2183 or MKTG 3213 with a grade of "C" or better in each; and a minimum grade of 70 on the Language Exam. Planning and the value of coordinating the various promotional mix elements within a communication campaign to create maximum clarity and consistency. Communication elements including advertising, public relations, direct marketing and sales promotion and examine strategies for combining and integrating them into an effective campaign. Theories, models and tools to make better professional communication decisions. No credit for students with credit in MC 5660.

SC 4653  Electronic Media Advertising. Prerequisite(s): 2013 or 2183 or MKTG 3213 with a grade of "C" or better; and a minimum grade of 70 on the Language Exam. Introduction to the strategic use of entertainment marketing and new media in advertising. Major principles and models of advertising marketplace trends in advertising and branding via new technologies, product placement, sponsorship, and cross promotions. All types of new media and entertainment marketing will be explored and analyzed including, but not limited to, Internet advertising, product placement in film, TV and gaming, mobile marketing, and viral marketing.

SC 4663  Professional Portfolio. Lab 2. Prerequisite(s): SC 3353 and SC 3753; or MMU 4423 with a grade of "C" or better in each; or permission of instructor; minimum grade of 70 on Language Proficiency Exam. 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.

SC 4843  Strategic Communication Campaigns. Prerequisite(s): 3383, 3953, 4013; and 3670 or 3673 with a grade of "C" or better; and a minimum grade of 70 on Language Proficiency Exam. Planning, preparation and presentation of comprehensive integrated strategic communication campaigns for national or local clients. Student teams produce and present different aspects of the campaign, from conception to presentation. Satisfies capstone requirement for strategic communication majors.

SC 4980  Advertising Competitions. 3 credits, max 6. Prerequisite(s): Consent of instructor. Research and construction of a comprehensive communications marketing campaign for the Advertising Federation National Student Advertising Competition. Student team members must make application for admission.

Student Development (SDEV)

SDEV 1113 Orientation in Student Athletics. 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.

SDEV 3013 (S)  Leadership Concepts. Prerequisite(s): 12 hours completed course work. 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.

SDEV 3091  Student Development Theory for Orientation Leaders. Prerequisite(s): Consent of instructor. Topics of student development. Topics include helping skills, student leadership community building, communication skills, and multicultural sensitivity. Application of theory to university orientation programs.

SDEV 3092  Student Development Training for Resident Assistant. Prerequisite(s): Consent of instructor. Topics of student development. Topics include helping skills, community building, communication skills, and multicultural sensitivity. Application of theory to living groups.

SDEV 5000**  Master's Thesis. 1-6 credits, max 6. Prerequisite(s): Consent of instructor.

SDEV 5173*  Introduction to Student Affairs. History, philosophy, and goals of student affairs units in colleges and universities; emphasis on practitioner roles and responsibilities.

SDEV 5213*  Student Development Theory. Examination of theories describing patterns of growth and development during the college years. Implications for the design of education practice on the college campus.

SDEV 5223*  Career Development for College Students. In-depth exploration of issues and contemporary theory related to the topic of career development for college students.

SDEV 5233*  Advanced Student Development Theory. Prerequisite(s): 5213. Focus is on contemporary and emerging theories of traditionally aged college student development from cognitive, spiritual, gender, racial identity, and student success families.

SDEV 5320*  Seminar in Student Development. 3-6 credits, max 6. Prerequisite(s): Consent of instructor. In-depth exploration of contemporary problems of applied behavioral studies.

SDEV 5333*  Effective Leadership in Student Services. Prerequisite(s): 5173 or consent of instructor. The organization and management of student services operations in postsecondary institutions. Models for policy and decision-making as well as leadership and supervision issues.

SDEV 5433*  Group and Cultural Interventions in Student Affairs. Prerequisite(s): Consent of instructor. Explores group theory, dynamics and cultural dimensions as these factors relate to working with college students and advising student groups in a higher education environment.

SDEV 5463*  Legal Issues in Student Affairs. Prerequisite(s): 5173 or 6173. Legal issues confronted by entry-level student affairs practitioners, how to recognize these issues, and how to act within the parameters of the law.

SDEV 5733*  Environmental Theory and Student Affairs. Prerequisite(s): Consent of instructor. Examination of campus environmental theory providing an understanding of campus environments approach to student affairs practice.

SDEV 6000**  Doctoral Dissertation. 1-9 credits, max 9. Prerequisite(s): Consent of instructor. Required of all candidates for doctorate in applied behavioral studies. Credit given upon completion and acceptance of dissertation.

SDEV 6173*  Administrative Issues in Student Affairs. Develops an understanding of the history, philosophy, student life, critical issues and administration of student personnel work in higher education.

SDEV 6213*  Higher Education Student Personnel Services. Prerequisite(s): 6173 or consent of instructor. Higher education student personnel services such as: admissions, orientation, student activities, financial aids, housing, and counseling.

SDEV 6220*  Internship in Higher Education Student Personnel. 1-3 credits, max 6. Prerequisite(s): 6213 or consent of instructor. Work and study opportunities under supervision in areas of student housing, student activities, financial aid, foreign student advisement, student personnel administration, student union, group facilitation and other appropriate work situations.

SDEV 6850**  Directed Reading. 1-6 credits, max 6. Prerequisite(s): Consent of instructor. Directed reading for students with advanced graduate standing.

Telecommunications Management (TCOM)

TCOM 3153 (I)  International Telecommunications Business Environment. Prerequisite(s): 2103 or consent of instructor. 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.

TCOM 3203  Telecommunications Industry Foundations. Prerequisite(s): Consent of instructor. Emerging trends in the telecommunications industry. Past events, regulatory and legal implications, strategic direction of organizations with respect to telecommunications.

TCOM 3223  Network Design Principles. Prerequisite(s): MSIS 3223. Management science principles applied to telecommunications network design. Specific topics will include mathematical programming, network models, simulation, and queuing theory.

TCOM 5012*  Telecommunications Laboratory. Prerequisite(s): Consent of instructor. Familiarization with the hardware used to move voice, data and video traffic. Data network experiments include set up and operation of a small LAN, interconnection of these LANs via bridges or routers, and attachment of voice and video modules to the LANs. Telephone network experiments include installation of small PBXs and interconnection of them to the campus phone system, and interconnection of the lab PBXs with crosspoint switches and fiber. Video experiments include interconnection and operation of a small two-camera studio, and digitizing and transferring the video over the laboratory telephone system. Practical operating aspects of standards of distance transmission devices, switching equipment media for transmitting data, voice and video signals. Handling information problems within selected environments.

TCOM 5113*  Industry Overview and Telecommunications Applications. Prerequisite(s): Graduate standing and consent of program director. Overview of telecommunications industry, technology, regulatory environment, and current topics in telephone services (wireless and wireline), business data services, CATV, and Internet services and providers (including JAVA and HTML). Material of strategic aspects of telecommunications technologies. Guest speakers from the telecommunications industry.

TCOM 5123*  The Upper Layers of Telecommunications Systems. Applied technical coverage of selected topics from the upper layers of the OSI model. Network and Transport layers using, TCP/IP, IPX/SPX, as well as security issues and other multi-layer protocol utilities. Other topics include flow control, RSVP, encryption, compression, and LAN/WAN applications.

TCOM 5143*  Telecommunications Systems Analysis, Planning and Design I. Prerequisite(s): ECEN 5553 and consent of program director. The
fundamentals behind systems analysis and design of telecommunication systems from a managerial perspective. Financial analysis of telecommunication projects, fundamentals of mathematical modeling and queuing theory, and other management tools that are key to the design and analysis of telecommunication networks.

TCOM 5153* International Telecommunications Management. Prerequisite(s): Graduate standing and consent of program director. Investigation of the institutions that affect the use of telecommunications. The various parts of the federal government involved, such as the Department of Commerce, the Federal Communications Commission, and the Department of State. The role of international institutions, including the ITU, UNESCO, and the various satellite organizations such as INTELSAT.

TCOM 5160* Telecommunications Practicum. 1-3 credits, max 3. Prerequisite(s): Graduate standing and consent of program director. Fulfills creative component requirement for TCOM MS. Application of knowledge and skills developed in core courses in an organizational environment to solve telecommunication management problems. Integration of concepts and adaptation of theory to fit organizational reality.

TCOM 5173* Global Telecommunications Regulation. Historical review of the classical "PTT (Post, Telephone and Telegraph) Model", and the development of new competitive environments. Overview of international telecommunications networks and how they are regulated nationally and internationally. Review of the World Trade Organization (WTO) and the telecommunications commitments made by members. Emphasis on the European Union and on the largest single telecommunications market, along with analyses of regional emerging markets. Review of challenges for the future for both regulatory agencies and telecommunications operators and providers.

TCOM 5193* Capstone: Telecommunications Systems Analysis and Design. Prerequisite(s): 5113, 5123, ECEN 5553, 25 hours of relevant graduate course work, and consent of program director. Application and attack gained throughout the curriculum to basic systems analysis tools and techniques to perform an analyses and designs in a telecommunications context. Knowledge of technology, management, international aspects, and regulatory environment to provide an overall view of impact that a given system may have on an organization. System documentation through use of classical and structured tools and techniques for describing flows, data flows, data structures, file designs, input and output designs, and program specifications may be used.

TCOM 5213* Telecommunications Systems Analysis, Planning and Design. Prerequisite(s): Prerequisite(s): 5113, 5123, ECEN 5553, consent of program director. The fundamentals behind systems analysis and design of telecommunication systems from an engineering perspective. Advanced mathematical modeling and queuing theory, graph theory, network design algorithms and other tools that are key to the design and analysis of telecommunication networks. An in-depth, technical and quantitative follow-up to TCOM 5143.

TCOM 5223* Information Assurance Management. A broad investigation of the elements of information assurance and security with an emphasis on the management impact to corporations and businesses engaged in information service and e-commerce. Students will come away from the course with the ability to advise management on the risks and mitigation for all types of threats to information and privacy.

TCOM 5233* Applied Information Systems Security. Prerequisite(s): 5123. An investigation into the various technical aspects of attacking, and of guarding against attacks and failures in various types of information systems. Course content may vary but includes computer, network, and data protection technologies (e.g. firewalls, packet filters, proxy servers, user authentication and validation techniques, data encryption, establishing virtual private networks, creating and using digital certificates for authentication, using encrypted e-mail technologies). Study of threats and attack methods explored (e.g. sniffers, password crackers, network scanners, etc.).

TCOM 5350* Advanced Telecommunications Management. Lab. 2-3 credits, max 3, Lab 2-3. Prerequisite(s): 5012 and consent of program director. Advanced state-of-the-art topics in voice, data and video. Hands-on network experiments beyond coverage in the required TCOM 5012 lab.

TCOM 5360* Wireless Communications Laboratory. 1-3 credits, max 9, Lab 16-48. Prerequisite(s): ECEN 4523, ECEN 5553 and consent of program director. Conducting wireless-modem and wireless-networking experiments and analyzing the problems that result in improved designs for wireless systems and networking performance.

TCOM 5370* Windows Security Lab. 1-3 credits, max 9, Lab 16-48. Prerequisite(s): Must have taken or currently enrolled in 5223 or 5323 and have consent of program director. Hands-on experience with various technical aspects of managing security, protecting information technology assets, attacking and of guarding against attacks and failures in information systems. Course content variable, but includes computer, network, and data protection technologies.

TCOM 5380* System Technologies for Information Assurance. 1-3 credits, max 3, Lab 1-3. Prerequisite(s): 5223, consent of director. The basics of an operating system, including memory handling, processing and I/O functions. Advanced state-of-the-art topics in OS commonly deployed in support of network infrastructure.

TD 1673 Costume Technology. Lab. 4. Elementary techniques of costume craft for the stage. Basic costuming skills. Practical experience preparing departmental productions.

TH 2213 Stage Speech and Diction. Lab 2. This course will focus on learning
the “General American” or “Broadcast Standard” accent of English. Also the student will be able to read and write in the International Phonetic Alphabet. Lastly articulatory process will be sharpened for better communication skill, no matter what career in which speech is used.

TH 2323 Acting II. Continuation and refinement of 1323. Textual and character analysis, characterization and inner techniques based on Stanislavskian system. Audition techniques and scene work focusing on truthful behavior through work on modern and contemporary plays.


TH 2413 (H) Introduction to the Theatre. Character, plot, thematic, historical and production analyses of various types of play scripts; understanding the work of various theatre artists; developing appreciative audiences.


TH 2500 Production Crew Practicum. 1-2 credits, max 6. Prerequisite(s): 1663 or 1673. Laboratory experience in the theatrical production process through participation on a production crew for a department production or semester.

TH 2553 Introduction to Stage Design. Prerequisite(s): 1663 and 1673 or consent of instructor. An integrated overview of the theory and practice of design for the stage.

TH 2563 Play Analysis. Play analysis and writing for the theatre from the point of view of different theatre practitioners and scholars. Course focuses on the techniques necessary for the transfer of dramatic literature to theatrical production.

TH 2633 Movement for the Actor. Lab 2. This is an introductory course to the physical aspects of role creation. It will introduce the student to several methodologies used in analyzing and altering physical performance in theatre and film. The primary method of analysis will be based on the theories of Laban/ Bartenieff and LeCoq. Masking, mime and period movement will be introduced. The students will be evaluated on the application of theories discussed and demonstrated in class.

TH 2833 Transitions to Professions in Design and Technology. Prerequisite(s): 1663 and 1673, and 1500 or 2500. Preparation for transition into the professional world of theatre designers and technicians. Includes career development, national/international theatre organizations, portfolio preparation, websites, resumes/application writing and interviewing.

TH 2971 Stage Makeup. Lab 2. Techniques of basic stage makeup. Application of makeup including a study of facial anatomy and character development. Laboratory work in preparation for departmental productions.

TH 3183 Scene Design for Theatre. Prerequisite(s): 2553 and 2563 or consent of instructor. The scenic designer’s approach to the script; execution of sketches, models, and working drawings.

TH 3213 Dramaturgy. Investigation of the nature and process of dramaturgy. Emphasis on analytical, research, and writing skills useful to all theatre artists. No credit for students with credit in 5313.

TH 3323 Sound Design and Technology. Prerequisite(s): 2553 and 2563 or consent of instructor. Use and design of sound in theatrical productions, including voice reinforcement, scoring, script analysis, and effects.

TH 3373 Acting III. Lab 2. Prerequisite(s): 1323 and 2323 or consent of instructor. This class explores techniques of classical verse plays through the works of William Shakespeare. Students will begin to acquire the tools to speak Elizabethan verse text and other poetic text.

TH 3400 Upper-Division Projects. 1-3 credits, max 6. Prerequisite(s): Consent of instructor. Individual or group study of techniques, history, or literature of the theatre. Required written survey of the project and self-evaluation of its results, or a term paper. Cannot receive credit for both 3400 and 5400.

TH 3433 Acting for the Camera. Lab 2. The course is designed to introduce the student to acting techniques for electronic media. Emphasis will be on practical application of theory. Through a series of scenes and exercises the student will become aware of the differences and similarities between stage and screen acting. Basic film editing, camera work, lighting and sound will be explored. The course will conclude with a final project, to be screened for the department.

TH 3452 Musical Theatre Dance. Lab 4. Course focuses on training performers in the various dance styles used in Broadway and off-Broadway musicals, demonstrating these dance skills by performing pieces of choreography created by well-known musical choreographers such as Susan Stroman, Gower Champion, Michael Bennett, Agnes de Mille, Joe Layton, Jerry Mitchell, and Bob Fosse.

TH 3500 Theatre Practicum II. 1-2 credits, max 4. Prerequisite(s): Consent of instructor. Advanced laboratory experience in theatre production, design, acting, and/or major crew assignments.

TH 3530 Topics in Performance. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. Specialized topics in acting or directing.

TH 3593 Lighting for Theatre. Lab 2. Prerequisite(s): 2553 and 2563 or consent of instructor. Stage lighting design, elementary electricity, mechanics of lighting instruments. Practical experience in lighting in preparing and running departmental productions.

TH 3633 (D,H) Voices of Diversity. Survey of dramatic literature and theatre created by diverse dramatists and theatre companies in the United States. Course will focus either a broad investigation of drama across many different identity groups or an in-depth exploration of the theatrical activity of one group of people.

TH 3853 Auditions and the Professional Actor/Director. Prerequisite(s): 1323, 2323, 3373 or permission of instructor. A professional acting studio focusing on the “business” of show business for actors. Networking and career building strategies will be explored and the building of an actor’s repertoire of audition material developed. The course will introduce students to writing resumes, selecting headshots, understanding unions, agents, managers, etc. Various guests will be utilized throughout the semester and will culminate in a public jury.

TH 3923 (H) Theatre History I. Aesthetic and social relationships of theatre and civilization from Ancient Greece to the 18th century.

TH 3933 (H) Theatre History II. Aesthetic and social relationships of theatre and civilization from the 19th century to the mid-20th century.

TH 3943 (H) Contemporary Theatre. Aesthetic and social relationships of theatre, especially those late civilizations from the Twentieth Century through the present.

TH 3953 Costume Design. Lab 2. Prerequisite(s): 2553, 2563 or consent of instructor. Approaches to basic costume design including research, conceptual analysis, figure drawing, and executions of sketches and renderings.

TH 4383® Stage Combat. Lab 4. Prerequisite(s): 2633 or consent of instructor. Safe and effective techniques for portraying theatrical representations of stage violence; melding technical aspects of stage combat with developing use of the actor’s craft.

TH 4403 Senior Honors Project. Prerequisite(s): Departmental invitation, senior standing, Honors Program participation. 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.

TH 4563 Senior Project. Prerequisite(s): Senior standing and consent of instructor. A guided reading and research program ending with a thesis or performance under the direction of a faculty member.

TH 4630 Topics in Design and Technology. 1-3 credits, max 9. Prerequisite(s): TH 1663, 1673 and 2553 or consent of instructor. Specialized topics in scenic, costume, sound, or lighting design or technology.

TH 4653 Advanced Stage Technology. Lab 2. Prerequisite(s): 1663. Advanced study in theatrical production techniques, including metalworking, special fabrications, rigging, and advanced carpentry.


TH 4683 Costume and Props Crafts. Lab 2. Prerequisite(s): 1663, 1673 and 2553 or consent of instructor. Use of advanced materials and techniques in the fabrication of specialized stage and costume props.

TH 4753® Stage Management. Prerequisite(s): Consent of instructor. 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.

TH 4953® Directing. Prerequisite(s): 1323 and 2563 and 4753 or consent of instructor. Play analysis for production, problems in staging, and the role of the director. Planning and direction of scenes in laboratory situations.

TH 4983® Scene Painting. Lab 3. Elementary techniques of scene painting. Individual projects in large scale in representing marble, rock to landscape, interiors. Color theory, forced perspective, ability to paint different styles.

TH 5000® Master’s Thesis and Research. 1-6 credits, max 6. Prerequisite(s): Consent of department head. Master’s level research in theatre for thesis option graduate students.

TH 5063® Scenography. Investigation of design styles and theories and the designers whose work advances the artform. Special emphasis will be placed on the development of visual and directional production concepts.

TH 5000® Master’s Creative Component and Research. 1-3 credits, max 3. Master’s level research in theatre for creative component option graduate students.

TH 5113® Theatre History and Theory I. 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.
TH 523* Seminar in Theatre History. Prerequisite(s): Undergraduate degree or instructor consent. Specific topics in theatre history with focus on theatre production in one historical or artistic era (e.g. Russian Silver Age, Post War French Absurdism, Imperial Roman), or the comparative study of theatre and drama in various nations.

TH 5240* Topics in Advanced Acting. 1-3 credits, max 6, Lab 2. Specialized topics in advanced acting.

TH 5313* Dramaturgy. Advanced investigation of the nature and process of dramaturgy. Emphasis on dramaturgical research and writing. No credit for students with credit in 3213.

TH 5400* Seminar in Theatre. 1-3 credits, max 9. Prerequisite(s): Consent of instructor. 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 3400 and 5400.

TH 5500* Individual Theatre Projects. 1-9 credits, max 9. Prerequisite(s): Consent of instructor. Individual projects in directing, acting, or design and technology for a specified theatre production, with concept, realization, and self-evaluation under faculty guidance.

TH 5513* Theatre History and Theory II. 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.

TH 5600* Seminar in Dramatic Literature. Prerequisite(s): Consent of instructor. Selected topics in dramatic literature. Texts and themes will vary by semester.

TH 5953* Problems in Advanced Directing. Prerequisite(s): 4953, consent of instructor. Problems in directing styles, especially Shakespeare, comedy, and absurdist drama. Preparation, rehearsal and staging of a complete production by each student.

University (UNIV)

UNIV 0023 Concepts of Algebra. Previous study in algebra is not assumed. Linear equations, laws of exponents, factoring, factoring applications, story problems, and substituting data into formulas. A comprehensive review of arithmetic procedures incorporated throughout the course. This course is not acceptable for degree credit at Oklahoma State University. This course alone will not satisfy remediation requirements. Graded on a satisfactory-unsatisfactory basis.

UNIV 0113 Developmental Science Process Skills. 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.

UNIV 0123 Intermediate Algebra. Prerequisite(s): One year of high school algebra or equivalent. In-depth coverage of applications of factoring, arithmetic operations with polynomial and rational algebraic expressions, review of laws of exponents (integers, fractions), simplifying radical expressions, equations (linear, radical, quadratic, rational), and graphing 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.

UNIV 0133 Basic Composition. Intensive instruction in sentence and paragraph structure, punctuation, grammar and word usage. May be used to fulfill the English 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.

UNIV 0143 Improving College Reading Skills. 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.

UNIV 1111 University Academic Services Freshman Orientation. Prerequisite(s): Beginning freshman standing in University Academic Services. Designed to help students ease the transition from high school to college; become aware of campus resources and administrative structures; explore various majors and careers; increase awareness of current issues in education; and enhance study skills and attitudes which can contribute to academic success.

UNIV 2001 Academic Assessment and Evaluation. 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.

UNIV 2510 Innovative Studies. 1-3 credits, max 6, Lab 0-6. May be used for not more than two semesters for one or experimental topics or techniques.

UNIV 2511 Introduction to Health Careers. An introduction to medical professions related to all areas of human and animal health. Graded on a pass-fail basis.

UNIV 2611 Health Portfolio Development. For students who have selected a specific health career. Explore how to be a competitive applicant to a health professions school, including factors such as prerequisite courses, GPA, admission test, volunteering, job shadowing, personal statements, interviews, and letters of recommendation.

UNIV 2910 Niblack Research Scholars. 1 credit, max 4, Lab 2. Prerequisite(s): Current recipient of the Niblack Research Scholar Award. Scientific research in a laboratory environment at an early stage of an academic career.

UNIV 3001 Academic Assessment for Transfer Students. 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.

UNIV 3110 Directed Study. 1-18 credits, max 18. Prerequisite(s): Written permission approved by instructor, the department head, and the dean of the student's college. Independent study, research, field work or internship. Some sections will be graded on a pass-fail basis.

UNIV 3511 Health Profession School Preparation. Prerequisite(s): Junior/senior pre-health students. This seminar targets the junior/senior pre-health professional primarily pre-medical, pre-dental, and pre-optometry. The seminar will provide the student with the necessary tools needed for the following to apply to their professional program: the application process; interview process, including a mock interview; composition of a personal statement; MCAT, DAT & OAT preparation; shadowing/volunteer experience. Graded on a pass-fail basis.

Veterinary Biomedical Sciences (VBSC)

VBSC 5000* Master's Research and Thesis. 1-6 credits, max 6. Prerequisite(s): Graduate standing. Research problem for meeting requirements of the Masters degree.

VBSC 5010* Professional Skills for Biomedical Sciences. 1-3 credits, max 3. Prerequisite(s): Graduate student standing; consent of instructor. 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.

VBSC 5013* Veterinary Biomedical Sciences I. Prerequisite(s): Consent of the department. 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.

VBSC 5023* Veterinary Biomedical Science II. Prerequisite(s): 5013 or permission of the department. Integrated applied biology and pathobiology 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.

VBSC 5103* Biological Toxicology. Prerequisite(s): Consent of instructor. 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. (No credit for students with degree credit in VBSC 5102*) (Same course as ITOX 5103*)

VBSC 5110* Special Problems. 1-6 credits, max 20. Prerequisite(s): Graduate standing and consent of instructor. Special research problems in the various fields of veterinary biomedical sciences.

VBSC 5120* Current Topics in Veterinary and Biomedical Science. 1 credit, max 4. Prerequisite(s): A minimum of one undergraduate introductory course in microbiology. Development of oral presentation skills, critical thinking and deductive reasoning through the use of discussion of current literature from the field of veterinary and biomedical science as it pertains to the study of infectious disease in humans and animals.

VBSC 5123* Veterinary Histology. Lab 3. Prerequisite(s): Graduate standing and consent of instructor. Organization and structure of cells and tissues of domestic animals.

VBSC 5134* Veterinary Physiology I. Lab 4. Prerequisite(s): Graduate standing...
and consent of instructor. Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses. (Eight week course)

**VBSC 5143** Veterinary Physiology II. Prerequisite(s): Graduate standing and consent of instructor. Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses. (Eight week course)

**VBSC 5155** Veterinary Physiology III. Prerequisite(s): Graduate standing and consent of instructor. Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses.

**VBSC 5202** Evaluation of Biomedical Research Data. Prerequisite(s): STAT 6013 or consent of instructor. Statistical analysis of biomedical data with emphasis on selection of appropriate biometrical procedures and interpretation of results rather than on computational aspects of procedures. Exploration of experimental design, data collection, and analysis within the context of biomedical investigation methodologies.

**VBSC 5232** Veterinary Parasitology I. Lab 2. Prerequisite(s): Graduate standing and consent of instructor. Introduction to the general principles of parasitism and parasites of veterinary medical importance including taxonomy, morphology, biology of parasites, modes of transmission, host-parasite relationships, infectious processes and pathogenicity, diagnostic methods, treatment and control measures and public health importance.

**VBSC 5253** Veterinary Immunology. Lab 4. Prerequisite(s): Graduate standing and consent of instructor. Basic principles of immunology and their application to veterinary medicine.

**VBSC 5264** General Pathology. Lab 2. Prerequisite(s): Graduate standing and consent of instructor. 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.

**VBSC 5323** Veterinary Parasitology II. Lab 2. Prerequisite(s): Graduate standing and consent of instructor. Principles of diagnostic, treatment, control and prevention of animal diseases produced by arthropod, protozoan, rickettsial, and helminth parasites. A problem-based approach to parasitic diseases affecting the integumentary, respiratory, hemopoietic, lymphatic, reproductive, urinary, nervous/sensory, musculoskeletal, and alimentary systems with emphasis on diseases of domestic animals.

**VBSC 5333** Pharmacology I. Prerequisite(s): Graduate standing and consent of instructor. 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.

**VBSC 5354** Infectious Diseases I. Lab 4. Prerequisite(s): Graduate standing and consent of instructor. Important animal diseases caused by bacteria, fungi, and viruses will be covered in 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 zoonotic diseases.

**VBSC 5363** Clinical Pathology. Lab 2. Prerequisite(s): Graduate standing and consent of instructor. Basic concepts pertinent to data interpretation and laboratory methods used in evaluation of disease.

**VBSC 5404** Techniques in Parasitology. Lab 1. Prerequisite(s): Graduate standing and general parasitology; hemimmunology or concurrent enrollment. Experimental application of basic research and teaching techniques in helminthology and protozoology. Individual participation and analysis of experimental situations and techniques applicable to all areas of zoology.

**VBSC 5432** Pharmacology II. Prerequisite(s): Graduate standing and consent of instructor. Continuation of 5333 that includes the mechanisms of action, disposition, side effects, and indications for groups of pharmacological agents used in veterinary medicine.

**VBSC 5454** Infectious Diseases II. Lab 4. Prerequisite(s): Graduate standing and consent of instructor. Continuation of Infectious Diseases I (5354).

**VBSC 5482** Hemolymphatic and Oncology. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the blood and lymphatic system. (6 week module)

**VBSC 5512** Laboratory Animal Medicine. Lab 1. Prerequisite(s): Graduate standing and consent of instructor. Introductory course focusing on the biology and major diseases of commonly used laboratory animals. (One - 4 hour lab per week)

**VBSC 5532** Molecular Genetics. Prerequisite(s): Graduate standing and consent of instructor. The expression, purification, characterization, and application of biological macromolecules in therapeutics and diagnostic relevant to animal and human health.

**VBSC 5533** Toxicology. Prerequisite(s): Graduate standing and consent of instructor. Diagnosis and management of intoxications involving plant, chemical, and biological toxins. (Nine week course) (Two - 2 hour labs per 9 weeks)

**VBSC 5542** Clinical Endocrinology I. Prerequisite(s): Graduate standing and consent of instructor. Advanced medical endocrinology addressing pharmacotherapeutic endocrine and the relative endocrinologies. 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.

**VBSC 5554** Bacterial Pathogenesis. Prerequisite(s): Undergraduate course in microbiology and consent of instructor. Survey of pathogenic mechanisms of bacteria and host response covering historic perspective; genetic organization of virulence; regulation of virulence factors; attachment; adhesion, an invasion; capsules and outer membrane proteins; intracellular parasitism; endotoxins; exotoxins; iron acquisition and host sequestration; antibiotic resistance mechanisms; innate immunity; acquired immunity; and evasion of host immunity. Lecture and discussion of directed reading of classic and current literature.

**VBSC 5563** Musculoskeletal System. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the musculoskeletal system. (Ten week course) (Two - 2 hour labs per 10 weeks)

**VBSC 5564** Alimentary System. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment and prevention of diseases related primarily to the alimentary system. (Fourteen week course)

**VBSC 5583** Dermatology and Endocrinology. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to skin and the endocrine system (nine-week model). (One - 4 hour lab per 9 weeks)

**VBSC 5612** Clinical Neurology. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of nervous system diseases. (Four course week)

**VBSC 5613** Biology of Parasites. Prerequisite(s): Graduate standing, general parasitology, or consent of instructor. A systematic and ecologic approach to the study of parasitology. Host-parasite relationships, physiology, ecology and behavioral aspects of parasitic organisms.

**VBSC 5614** Cardiopulmonary System. Lab 4. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the cardiovascular and respiratory systems. (Nine week course) (Four - 2 hour labs per 9 weeks)

**VBSC 5632** Exercise Physiology. Prerequisite(s): Graduate standing and consent of instructor. Current knowledge base pertaining to the acute and chronic adaptations to exercise in domestic animals and current techniques for the evaluation and correction of poor performance.

**VBSC 5661** Infectious and Parasitic Diseases of Wild Animals. Prerequisite(s): Graduate standing and consent of instructor. Systematic approach to infectious and parasitic diseases that affect wild animals. Emphasis will be placed on disease recognition in wild species, ecology of transmission, and population management implications of disease diagnosis.

**VBSC 5662** Urinary System. Prerequisite(s): Graduate standing and consent of instructor. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the urinary system. (Three week module)

**VBSC 5671** Clinical Endocrinology II. Prerequisite(s): Graduate standing and consent of instructor. 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 uses of hormones to control reproductive activity of animals.

**VBSC 5691** A Focus on Zoonotic Diseases. Prerequisite(s): Graduate standing and consent of instructor. Overview of zoonotic aspects of infectious diseases, including the transmission to man, incidence and prevalence, prevention and control strategies, assessment of risk, and governmental and managerial aspects of these public health threats. Diseases of all veterinary species will be balances according to various aspects of importance, transmission, incidence, and other current concepts.

**VBSC 5702** Whales and Dolphins. Prerequisite(s): Graduate standing and consent of instructor. Overview of functional morphology of living whales, dolphins, and porpoises. Families and species, evolution, skeleton, feeding, diving, reproduction, echolocating, brain and special senses, thermoregulation, life histories, cultural and environmental perspectives, and human impact. Functional and comparative structural adaptations of
cetaceans to the marine environment and comparisons with terrestrial mammals.

**VBSC 5723** Parastic Protozoa. Lab 3. Prerequisite(s): Graduate standing in zoology or entomology or consent of instructor. Structure, life cycle, physiology, host-parasite relationships, and diagnosis concerned with protozoan parasites.

**VBSC 6000** PhD Research and Dissertation. 1-15 credits, max 45. Prerequisite(s): Graduate standing. Research problem for meeting requirements of the PhD degree.

**VBSC 6110** Seminar. 1-6 credits, max 6. Prerequisite(s): Graduate standing. Literature and research problems pertaining to veterinary biomedical sciences.

**VBSC 6120** Advanced Physiology of Selected Systems. 3-15 credits, max 15. Prerequisite(s): Graduate standing or consent of instructor. Advanced studies in gastrointestinal, cardiovascular, respiratory, excretory and neuroendocrine physiology. Each part of this sequential course may be taken for two hours credit. Students should ascertain the topics before registering for this course a second time.

**VBSC 6200** Topics in Advanced Pharmacology and Toxicology. 1-4 credits, max 4. Prerequisite(s): Consent of instructor. Selected topics in advanced pharmacology, including xenobiotic kinetics and dynamics.

**VBSC 6203** Advanced Concepts in Veterinary Immunology. Prerequisite(s): S113 or BIOG 3653 or MIRC 3254. Induction of immune responses, host defense mechanisms, immunoregulation, antigen presentation and immune recognition by B and T lymphocytes, using contemporary research publications.

**VBSC 6213** Toxicology: From Molecules to Ecosystems. Prerequisite(s): Graduate standing, consent of instructor. An integrated systems-based approach to toxicology from molecular, cellular, organ, organismal, and ecological perspectives.

**VBSC 6220** Advanced Topics in Cell Biology. 1-5 credits, max 12. Prerequisite(s): Consent of instructor. Selected topics in cell biology including membrane traffic, cell signaling, ion transport, cytoskeleton, cell cycle, cell junctions, and adhesion.

**VBSC 6223** Xenobiotic Disposition. Prerequisite(s): Graduate standing and consent of instructor. Quantitative analysis of xenobiotic absorption, metabolism, and excretion. Analysis of xenobiotic concentration-time data using pharmacokinetic software. (No credit for students with degree credit in TOX 6223)*

**VBSC 6233** Laboratory in Electron Microscopy. Lab 12. Prerequisite(s): Consent of instructor. Student learns to prepare specimens for, and to operate, the electron microscope, and techniques for printing and preparation of electron micrographs for publication.

**VBSC 6550** Problems in Functional Morphology. 1-3 credits, max 3. Lab 3-9. Prerequisite(s): Consent of instructor. Investigations in comparative, gross, and developmental morphologic morphology.

**VBSC 6560** Advanced Pathology Techniques and Special Problems. 1-6 credits, max 6. Prerequisite(s): Graduate standing in biological sciences and consent of instructor. Investigations of contemporary techniques and methods used in diagnosis, technical work and research in pathology.

**VBSC 6560** Current Topics in Bacterial Pathogenesis. 1-10 credits, max 10. Prerequisite(s): Consent of instructor. VBSC 5552 or equivalent and consent of instructor. Selected mechanisms in bacterial pathogenesis and host response using recent literature, such as genetic organization of virulence; regulation of virulence factors; attachment, adhesion, and invasion; capsules and outer membrane proteins; intracellular parasitism; endotoxin; exotoxins; iron acquisition and host sequestration; antibiotic resistance mechanisms; innate immunity; acquired immunity; and evasion of host immunity on a rotating basis. Lecture and discussion of directed reading of current literature.

**VBSC 6710** Seminar in Veterinary Clinical Sciences. 1-3 credits, max 3. Prerequisite(s): Graduate standing in the College of Veterinary Medicine, or internship or residency training program in the Department of Veterinary Clinical Sciences. Literature and research of problems pertaining to veterinary clinical sciences.

**VBSC 6712** Advances in Veterinary Medicine I. Prerequisite(s): Graduate standing in the College of Veterinary Medicine, or internship or residency training program in the Department of Veterinary Clinical Sciences. Special problems course emphasizing organ system physiology, selected diagnostic and therapeutic topics, and requiring a publication-quality paper on an approved subject.

**VBSC 6722** Advances in Veterinary Medicine II. Prerequisite(s): Graduate standing in the College of Veterinary Medicine, or internship or residency training program in the Department of Veterinary Clinical Sciences. Special problems course emphasizing organ system physiology, selected diagnostic and therapeutic topics, and requiring a publication-quality paper on an approved subject.

**VBSC 6910** Veterinary Pathology Slide Conference. 1-2 credits, max 6. Prerequisite(s): Medical degree. Guided weekly exercises based on veterinary diagnostic microscopy.

**VBSC 6920** Diagnostic Pathology. 1-4 credits, max 4. Lab 3-9. Prerequisite(s): Graduate standing in the College of Veterinary Medicine or written consent of department head. Weekly review of current cases submitted to the department and the methods employed in diagnosis. Examination of necropsy reports, specimens, and preparations. Students required to formulate diagnoses.

**VBSC 6930** Comparative Anesthesiology. 1-3 credits, max 3. Prerequisite(s): Graduate standing in the College of Veterinary Medicine or consent of the head of the department. Anesthesiology of animals.

**VBSC 6950** Advanced Systemic Pathology. 2-4 credits, MS max 6, PhD max 12. Prerequisite(s): VMED 5294, graduate standing, consent of instructor. Total credit not to exceed six for the MS degree and 12 for the PhD. Re-enrollment permits the study of two to four different groups of organs and systems of the animal body. A consideration of the pathology and the morphological, biochemical, and comparative aspects of lesions found in organs and tissues of the domesticated animals.

**VBSC 6960** Current Topics in Veterinary Clinical Pathology. 1-3 credits, max 9. Prerequisite(s): DVM or equivalent, graduate standing and consent of instructor. Obtaining current knowledge and developing critical thinking and reasoning skills through seminars and discussions of current literature from the field of veterinary clinical pathology and general pathology.

**VBSC 6963** Advanced Clinical Pathology. Prerequisite(s): VMED 5362 or equivalent, graduate standing and consent of instructor. Applied clinical biochemistry, organ function tests and related cytologic examination.

**VBSC 6973** Advanced Hematology. Prerequisite(s): VMED 5362 or equivalent, graduate standing and consent of instructor. The etiology and pathogenesis of the diseases of the blood and bone marrow.

**Veterinary Clinical Sciences (VCS)**

**VCS 7003** Elective I. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Students required to choose four electives. Two of those electives on-campus. Two electives may be off-campus.

**VCS 7013** Elective II. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Students required to choose four electives. Two of those electives on-campus. Two electives may be off-campus.

**VCS 7023** Elective III. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Students required to choose four electives. Two of those electives on-campus. Two electives may be off-campus.

**VCS 7033** Elective IV. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Students required to choose four electives. Two of those electives on-campus. Two electives may be off-campus.

**VCS 7703** Intensive Care Clinic. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Clinical rotation in small animal intensive care/critical and emergency medicine. Letter graded.

**VCS 7713** Radiology Clinic. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnostic radiography, ultrasound, and other special imaging modalities.

**VCS 7723** Equine Medicine Clinic. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnosis, prognosis, treatment and prevention of equine medical diseases.

**VCS 7733** Community Practice. Lab 9. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Receiving and managing emergency and general medical and surgical cases in companion animals.

**VCS 7743** Small Animal Internal Medicine. Lab 9. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnosis, prognosis, treatment and prevention of companion animal medical diseases.

**VCS 7753** Small Animal Surgery Clinic. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnosis, prognosis, treatment and prevention of diseases of food animal medical and surgical diseases.

**VCS 7773** Large Animal Theriogenology. Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Management of breeding cattle allowed at the Center for Veterinary Health Sciences Ranch, including artificial insemination, treatment of infertility, periparturient management, and pediatrics.

**VCS 7783** Zoological Medicine Clinical Elective. Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Health maintenance, diagnosis and treatment of medical or surgical conditions in zoo, exotic pet and wildlife species.

**VCS 7793** Equine Surgery Clinic. Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnosis, prognosis,
treatment, and prevention of equine surgical diseases.

**VCS 7803 Clinic Pool.** Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Semi-elective clinical assignment. Graded on a pass-fail basis.

**VCS 7813 Preceptorship Clinic.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Diagnosis, prognosis, prevention and treatment of diseases of animals presented in the preceptorship program. Graded on a pass-fail basis.

**VCS 7823 Non-OSU Clinic.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Approved clinical rotations off the OSU campus. Graded on a pass-fail basis.

**VCS 7833 Special Clinics.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine or graduate veterinarian. Special assignments for introductory clinical studies in the following: selected species clinic; herd-health program; necropsy, clinic pathology and parasitology; diagnostic laboratory; and special aspects of the basic sciences. Graded on a pass-fail basis.

**VCS 7843 Anesthesiology.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Management of clinical anesthesia in various domestic species.

**VCS 7853 Equine Performance Medicine.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine and VMED 7771, 7811 and 7821. Common diagnostic techniques used in equine sports medicine will be systematically reviewed in a "hands-on" approach. This will include performing pre-purchase and lameness examinations, diagnostic nerve blocks, ultrasound, and radiology. At least three "field trips" will be utilized to increase exposure to different equine sports including race track, horse show, and endurance case bases. Graded on a pass-fail basis.

**VCS 7863 Clinical Pathology and Parasitology Elective.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Students will work with clinical pathology residents and laboratory personnel. Emphasis is placed on cytology, hematology, and parasitology. Each student will spend one week in each area. Graded on a pass-fail basis.

**VCS 7873 Ultrasound.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine and VMED 7443. 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, work on a "hands-on" approach in the clinical ultrasound study. In library research on the subject of diagnostic ultrasound, including, but not limited to, viewing a CD, reading textbooks and journal articles on the subject and examining prepared ultrasound case studies containing diagnostic challenges and problems to solve.

**VCS 7883 Animal Shelter.** Lab 3. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine and VMED 7443 or VMED 7412 and one surgery rotation. The goals of this rotation are to apply basic clinical, surgery and anesthesia skills primarily to pet adoption candidates. Graded on a pass-fail basis.

**VCS 7893 Field Services (Ambulatory) Elective.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Allows students to gain confidence in various clinical procedures common in field practice; to become familiar with the more common diseases and conditions that occur in the field setting and how to manage them in the appropriate medical setting, study, review, and prepare cases seen or for surgery; actively participate in rounds and "on the road" discussions, and learn to communicate with clients.

**VCS 7903 Ophthalmology Elective.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. This is a three week clinical rotation in small animal, equine, exotic animals, and food animal ophthalmology. Students will take part in outpatient receiving including history taking, ophthalmic examination, forming a problem list and case assessment, and forming a treatment plan. Students will assist in surgery and be responsible for the care of all hospitalized patients. Students will also assist with after-hours ophthalmic emergencies. Ophthalmology students also share EMS and isolation ward duties.

**VCS 7912 Grand Rounds.** Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. Presentation and discussion of selected clinical topics by fourth-year students, departmental faculty, and invited experts. Letter grade.

**VCS 7913 Cardiology Elective.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. This is a three week clinical rotation in cardiology. Students will take part in outpatient receiving including history taking, ophthalmic 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.

**VCS 7923 Oncology Elective.** Lab 2. Prerequisite(s): Fourth-year standing in the College of Veterinary Medicine. All three week rotations will provide a clinical, comprehensive, and in-depth learning experience from patients with cancer. Instruction and guidance will be provided by "Instructor of Record" for the course.

**Veterinary Medicine (VMED)**

**VMED 7113 Veterinary Physiology II.** Prerequisite(s): First-year standing in the College of Veterinary Medicine or consent of instructor. Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses. Continuation of 7114. (8 week course)

**VMED 7114 Veterinary Physiology I.** Prerequisite(s): First-year standing in the College of Veterinary Medicine. 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.

**VMED 7123 Veterinary Histology.** Lab 1. Prerequisite(s): First-year standing in the College of Veterinary Medicine. Organization and structure of cells and tissues of domestic animals.

**VMED 7144 Gross and Developmental Anatomy.** Prerequisite(s): First-year standing in the College of Veterinary Medicine or consent of instructor. Embryology and anatomy of domestic mammals using the dog as the primary model. Integrated lecture-dissection-laboratory format. The integration of developmental gross, radiographic and applied aspects of veterinary anatomy as they relate to a topographical appreciation of the living individual. An overview of domestic bird and laboratory animal anatomy.

**VMED 7152 Zootechnology.** Prerequisite(s): First-year admission to College of Veterinary Medicine or consent of instructor. Animal breeds and identification, animal production and marketing systems and animal handling and restraint as it applies to production and marketing.

**VMED 7162 Jurisprudence and Ethics.** Prerequisite(s): First-year standing in College of Veterinary Medicine. Introduction to veterinary jurisprudence, ethics, licensing, government regulations, human-animal bond, and evolving issues in animal law and animal welfare.

**VMED 7221 Epidemiology and Evidence-Based Medicine.** Prerequisite(s): First-year standing in the College of Veterinary Medicine. 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.

**VMED 7223 Veterinary Parasitology I.** Lab 2. Prerequisite(s): First-year standing in the College of Veterinary Medicine or consent of instructor. Animal breeds and identification, animal production and marketing systems and animal handling and restraint as it applies to production and marketing.

**VMED 7235 Veterinary Physiology III.** Prerequisite(s): First-year standing in the College of Veterinary Medicine or consent of instructor. Molecular, cellular and organ system physiology. Establishing a base of knowledge and understanding requisite to subsequent courses.

**VMED 7243 Comparative Anatomy.** Prerequisite(s): First year standing in the College of Veterinary Medicine or consent of instructor. Comparative and functional how to move/disdevelopmental anatomy of domestic mammals. The integration of developmental, gross, radiographic, and applied clinical aspects of veterinary anatomy as they relate to a topographical appreciation of the living individual. Integrated lecture-dissection-laboratory format.

**VMED 7253 Veterinary Immunology.** Lab 4. Prerequisite(s): First-year standing in College of Veterinary Medicine or consent of instructor. Basic principles of immunology and their application to veterinary medicine.

**VMED 7264 General Pathology.** Lab 2. Prerequisite(s): First-year standing in the College of Veterinary Medicine or consent of instructor. 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.

**VMED 7311 Introduction to Clinics I.** Lab 2. Prerequisite(s): Second-year standing in College of Veterinary Medicine. Clinical orientation including rotations in instruction and service units in the College. Graded on a pass-fail basis.

**VMED 7323 Veterinary Parasitology II.** Lab 2. Prerequisite(s): Second-year standing in the College of Veterinary Medicine or consent of instructor. Principles of diagnostic, treatment, control and prevention of animal diseases produced by arthropod, protozoan, rickettsial, and helminth parasites. A problem-based approach to parasitic diseases affecting the integumentary, respiratory, hemic-lymphatic, reproductive, urinary, nervous/sensory, musculoskeletal, and alimentary systems with emphasis on diseases of domestic animals.

**VMED 7333 Pharmacology I.** Prerequisite(s): Second-year standing in the College of Veterinary Medicine or consent of instructor. 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.

VMED 7342 Clinical Anatomy. Lab 6. Prerequisite(s): Second-year standing in the College of Veterinary Medicine. Aspects of gross anatomy as they relate to clinical applications.

VMED 7354 Infectious Diseases I. Lab 4. Prerequisite(s): Second-year standing in College of Veterinary Medicine or consent of instructor. Important animal diseases caused by bacteria, fungi and viruses covered on a system by system basis. Mechanisms of infectious disease will be discussed in 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 zooneos.

VMED 7363 Clinical Pathology. Lab 1. Prerequisite(s): Second-year standing in the College of Veterinary Medicine. Basic concepts pertinent to data interpretation and laboratory methods used in evaluation of disease.

VMED 7401 Introduction to Beef Production Medicine. Prerequisite(s): second-year or third-year standing in the College of Veterinary Medicine. 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.

VMED 7412 Anesthesiology. Lab 6. Prerequisite(s): second-year standing in the College of Veterinary Medicine. Application of the principles of veterinary anesthesiology to incorporate fundamental aspects of physiology and pharmacology in the anesthetic management of important domestic species.

VMED 7413 Food Safety and Public Health. Prerequisite(s): First-year standing in the College of Veterinary Medicine. 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.

VMED 7432 Pharmacology II. Prerequisite(s): Second-year standing in the College of Veterinary Medicine or consent of instructor. Continuation of 7333 that includes the mechanisms of action, disposition, adverse effects, and indications for groups of pharmacological agents used in veterinary medicine.

VMED 7443 Diagnostic Imaging. Lab 13. Prerequisite(s): Second-year standing in the College of Veterinary Medicine. Radiographic theory, techniques, and interpretation. Introduction to alternate methods, including ultrasonography.

VMED 7454 Infectious Diseases II. Lab 4. Prerequisite(s): Second year standing in the College of Veterinary Medicine or consent of instructor. Continuation of Infectious Diseases I (7354).

VMED 7482 Hemolymphatic and Oncology. Prerequisite(s): Second-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the blood and lymphatic system (six-week module).

VMED 7502 Ophthalmology. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, medical and surgical treatment, and prevention of ophthalmic disease in small animal and equine patients.

VMED 7510 Research Elective. 1-4 credits, max 8, Lab 30-90. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. 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.

VMED 7512 Laboratory Animal Medicine. Introductory course focusing on the pathology and major diseases of commonly used laboratory animals and regulatory issues affecting attending veterinarians in biomedical research environments.

VMED 7521 Veterinary Practice Management. Prerequisite(s): Second-or-third-year standing in College of Veterinary Medicine. 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.

VMED 7522 Signs and Symptoms of the Small Animal Medical Diagnosis. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. Introduction to clinical problem solving through application of a problem-oriented approach to clinical diagnosis. Discussion of major problem (clinical signs and symptoms) affecting animals, as well as 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.

VMED 7523 Surgery. Lab 48. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Introduction to fundamental principles of surgery. Didactic material followed by surgical laboratories.

VMED 7531 Avian Biology for Veterinarians. Prerequisite(s): Second- or third-year standing in the College of Veterinary Medicine. Topics in avian biology of value to veterinary students who will be treating birds in their practice or those planning to be active in raptor rehabilitation. Feather anatomy and molt; bill and claw anatomy; characteristics of the avian skeleton; weight saving adaptations; recondition atrophied flight muscles in raptors; anatomy of the digestive system; how birds breathe; avian aerodynamics; taste and olfaction in birds; reproductive biology; raptor natural history; identification, rehabilitation.

VMED 7532 Molecular Genetics. Prerequisite(s): Second-or-third-year or higher in good standing in the College of Veterinary Medicine. The expression, purification, characterization, and application of biological macromolecules in therapeutic, diagnostic and diagnostic devices. The design and development of therapeutic/medical/toxicological, and medical/toxicological/toxicological devices. The development of toxicological/toxicological/toxicological devices.

VMED 7541 Introduction to Food Animal Production Systems. Prerequisite(s): second-year or third-year standing in the College of Veterinary Medicine. 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.

VMED 7563 Clinical Endocrinology I. Prerequisite(s): Second or third-year standing in the College of Veterinary Medicine. 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 diagnosis and treatment. 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.

VMED 7551 Food Animal: Advanced Techniques. Prerequisite(s): second-year standing in the College of Veterinary Medicine. 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 procedures, diagnostic and treatment techniques. The focus of the course will be on topics relevant to shelter medicine. Discusses major subjects and issues important to practicing medicine in the shelter setting.

VMED 7562 Avian and Exotic Pet Medicine. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Clinical diagnosis, management and treatment of ornithology, 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.

VMED 7563 Musculoskeletal Systems. Lab 9. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the musculoskeletal system.

VMED 7564 Alimentary System. Lab 12. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the alimentary system.

VMED 7571 Introduction to Behavioral Medicine. Prerequisite(s): Second- or third-year standing in College of Veterinary Medicine. Introduction to behavioral veterinary medicine. Normal behavior of the dog and cat, basic principles of learning and methods for the treatment of behavior problems.

VMED 7581 Zoo and Wildlife Medicine. Prerequisite(s): third-year standing in the College of Veterinary Medicine. Veterinary and preventive management of captive zoo animals, veterinary care and rehabilitation of injured and orphaned free-ranging wildlife.

VMED 7583 Dermatology and Endocrinology. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to skin and the endocrine system (nine-week module).

VMED 7591 International Veterinary Medicine. Prerequisite(s): Second- or third-year standing in the College of Veterinary Medicine. Overview of the experience 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.

VMED 7610 Basic Science Elective. 1-8 credits, max 8. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine.
Problems in the basic sciences taught as lecture or lab.

VMED 7611 Applied Pharmacology. Lab 7. Prerequisite(s): Second or third-year standing in the College of Veterinary Medicine. Criteria applicable to the rational selection of pharmacological agents used in the therapy of animal diseases, adverse reactions and interactions that may complicate therapy, and issues relevant to the ethical use of drugs and avoidance of residues in food products.

VMED 7612 Clinical Neurology. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment and prevention of nervous system diseases.

VMED 7614 Cardiopulmonary System. Lab 24. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the cardiovascular and respiratory systems.

VMED 7620 Clinical Science Elective. 1-8 credits, max 8. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. Problems in the clinical sciences taught as lecture or lab.

VMED 7621 Zoonotic Diseases. Prerequisite(s): Second or third year standing in the College of Veterinary Medicine or consent of instructor. Overview of zoonotic aspects of infectious diseases, including the transmission to man, incidence and prevalence, prevention and control strategies, assessment of risk, and governmental and regulatory aspects of these public health threats. Diseases of all veterinary species will be balanced according to various aspects of importance, ease of transmission, incidence, and other current concepts.

VMED 7622 Problem Solving in Internal Medicine. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. Clinic cases that provide fundamental knowledge of basic pathophysiology.

VMED 7631 History of Veterinary Medicine. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. History of the veterinary medical profession, especially in North America.

VMED 7632 Exercise Physiology. Prerequisite(s): Second-or-third-year standing in the College of Veterinary Medicine. Current knowledge base pertaining to the acute and chronic adaptations to exercise in domestic animals and current techniques for the evaluation and correction of poor performance.

VMED 7642 Veterinary Sports Medicine. Prerequisite(s): VMED 7632 and second-year or third-year standing in the College of Veterinary Medicine. Course will provide the current knowledge pertaining to the diagnosis and treatment of injuries of athletic dogs and horses and causes of poor performance in these species.

VMED 7651 Equine Theriogenology Laboratory. Lab 3. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Introduction to palpation, ultrasonographic examination and breeding preparation of the mare and stallion.

VMED 7652 Introduction to Clinics II. Lab 2. Prerequisite(s): Third year standing in the College of Veterinary Medicine. Rotations through instructional and service areas, including the Veterinary Teaching Hospital of the College of Veterinary Medicine. Graded on a pass-fail basis.


VMED 7662 Urinary System. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the urinary system (2.5 week module).

VMED 7671 Clinical Endocrinology II. Prerequisite(s): Second or third year standing in the College of Veterinary Medicine. 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.

VMED 7672 Swine Production and Diseases. Prerequisite(s): Second or third-year standing in the College of Veterinary Medicine. Problem-based course related to swine diseases and production systems.

VMED 7674 Theriogenology. Lab 2. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related primarily to the reproductive system.

VMED 7681 Advanced Neurology. Prerequisite(s): Second or third year standing in the College of Veterinary Medicine. Case based, problem oriented clinical diagnosis, management, treatment and prevention of small animal neurological diseases.

VMED 7682 Small Ruminant Production, Management, Medicine and Surgery. Prerequisite(s): Second or third-year standing in the College of Veterinary Medicine. Production, management, medical and surgical diseases of sheep, goats, and llamas used for production and companion animals.

VMED 7691 A Focus on Zoonotic Diseases. Prerequisite(s): Second or third year standing in the College of Veterinary Medicine or consent of instructor. Overview of zoonotic aspects of infectious diseases, including the transmission to man, incidence and prevalence, prevention and control strategies, assessment of risk, and governmental and regulatory aspects of these public health threats. Diseases of all veterinary species will be balanced according to various aspects of importance, ease of transmission, incidence, and other current concepts.

VMED 7701 Small Animal Diagnostic Ultrasound. Lab 10. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. An introduction to diagnostic ultrasonography, basic physics of ultrasound production, transmission in tissues, image formation and common artifacts. Recognition of normal organs, organ function, and common diseases that can be diagnosed sonographically in small animals.


VMED 7710 Veterinary Study Abroad. Prerequisite(s): Second or third-year standing in the College of Veterinary Medicine. Participation in international animal health activities having an educational component, either through didactic instruction, service learning, workshop participation, and others.

VMED 7711 Problem-based Ophthalmology. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. 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.

VMED 7712 Systemic Pathology: Case Studies and Mechanisms of Disease. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. A capstone course dealing with selected cases that provide a review of basic pathophysiology.

VMED 7713 Advanced Equine Medicine I. Problem-Based Learning. Lab 3. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Case-based problem oriented clinical diagnosis, management, treatment, and prevention of internal medicine diseases common to small animals. Small group format will meet one hour per week at a time determined by the individual groups.

VMED 7732 Advanced Oncology. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Reviews the diagnosis, staging and treatment of common neoplasms in small animal veterinary medicine. Course presents a systemic approach to the cancer patient, proper collection, submission, and evaluation of diagnostic samples, and development of rational therapeutic plans.

VMED 7742 Bovine Theriogenology Laboratory. Lab 4. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Palpation techniques in cows. An elective restricted to students entering food animal practice.


VMED 7752 Applied Bovine Nutrition. Lab 14. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Applied nutrition of beef and dairy cows. Restricted to students that wish to enter food animal practice.

VMED 7761 Introduction to Integrative Medicine: An Investigation into Holistic Veterinary Medicine. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. 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.

VMED 7771 Advanced Equine Medicine I. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. Expanded study of topics pertinent to equine practice. Supplemental information presented in core courses and aims to provide exposure to basic clinicopathology commonly used in equine practice. A clinical practice perspective will be emphasized. Hands-on laboratories will be used as an adjunct to lectures when appropriate. A companion course will be presented during spring semester.

VMED 7781 Professional Veterinary Medicine. Prerequisite(s): Third-year standing in the College of Veterinary Medicine. A capstone course
ZOOLOGY

ZOO 1604 Animal Biology. Lab 2. Prerequisite(s): BIOL 1114. Morphology, physiology, ecology, embryological development behavior, life histories and importance to man of representatives of major groups. Evolution of systems and mechanisms which have allowed animals to survive and adapt to diverse habitats.

ZOO 2111 Opportunities in Zoology. Prerequisite(s): Sophomore standing and BIOL 1114. An overview of biological science disciplines and professional opportunities for Zoology majors. Development of critical thinking, scientific writing, and presentation skills in the context of scientific discovery and dissemination.

ZOO 3023 (N) Freshwater, Concepts, Threats and Management. 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.

ZOO 3104* Invertebrate Zoology. Lab 4. Prerequisite(s): 1604. Morphology, physiology, reproduction and ecology of major invertebrate groups.

ZOO 3113 (N) Human Evolution. Prerequisite(s): BIOL 1114 or equivalent strongly recommended. 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.

ZOO 3114* Vertebrate Morphology. Lab 3. Prerequisite(s): 1604. Comparative morphology of representative vertebrates with emphasis on phylogeny and ontogeny and consideration of histology and function.

ZOO 3123 (N) Human Heredity. The impact of genetics on human endeavor. No degree credit for students with prior credit in BIOL 3023.

ZOO 3153 Animal Behavior. Prerequisite(s): Junior standing. Survey of theory and application in basic and applied animal behavior. Interdisciplinary analysis of animal behavior in the field, captive settings and laboratories.

ZOO 3163 Environmental Biology. Prerequisite(s): Introductory Biology and one course in General Chemistry. 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.

ZOO 3204 Physiology. Lab 2. Prerequisite(s): BIOL 1114; CHEM 1215 or 1314. Anatomy and function of the human body. Human and domestic animal physiology considered in laboratories.

ZOO 3214 Human Anatomy. Lab 3. Prerequisite(s): 1604 or 3204. 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. ZOOL and PHSL majors may count as elective hours only.

ZOO 3233 Human Reproduction. Prerequisite(s): BIOL 1114. 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.

ZOO 3513 Principles of Conservation Biology. Prerequisite(s): 60 credit hours including BIOL 3034. Application of ecological principles to the maintenance and restoration of biodiversity at genetic, population, and community levels. (Same course as NREM 3513)

ZOO 3700 Readings and Special Studies in Zoology. 1-3 credits, max 6. Prerequisite(s): ZOOL 1604 and consent of instructor. Discussion of selected readings.

ZOO 4104* General Parasitology. Lab 3. Prerequisite(s): 1604. Fundamentals of parasitism with emphasis on: life cycles, disease conditions, epidemiology, diagnosis, treatment, historical significance, terminology, taxonomy, and parasitological techniques.

ZOO 4113 Conservation Genetics. Prerequisite(s): BIOL 3023 or equivalent, MATH 1513. 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 5113. (Same course as 5113*)

ZOO 4115* Biology of Fishes, Amphibians and Reptiles. Lab 5. Prerequisite(s): ZOOL 1604. Systematics, evolution, and natural history of fishes, amphibians and reptiles; laboratory emphasis on Oklahoma species. Offered spring semester of even-numbered years. Weekend field trips required.

ZOO 4133* Evolution. Prerequisite(s): BIOL 3023. Development of the evolutionary concept; speciation evolutionary mechanisms and phylogenetic concepts.
LAB 2. Prerequisite(s): 3114, MICR 3033. 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.

LAB 4174*: Mammalogy. Lab 3. Prerequisite(s): 1604. Taxonomy, identification, evolution, zoogeography, life history traits, and techniques of study of wild mammals with weekend field trips required.

LAB 4215*: Mammalian Physiology. Prerequisite(s): ZOOL 3204 and CHEM 3015 or CHEM 3035. Descriptive and functional analysis of the mammalian nervous, cardiovascular, musculoskeletal, respiratory, renal, endocrine, and digestive organ systems. For majors in biological, agricultural, or human environmental (including pre-medical, pre-dentistry and pre-veterinary) sciences.

LAB 4223*: Mammalian Physiology Laboratory. Lab 4. Prerequisite(s): 4215. Co-requisite: 4231. Laboratory experiments that illustrate function of organs, organ systems or mechanisms of whole body physiological control.

LAB 4231* Seminar in Physiology. Prerequisite(s): 4215. Co-requisite: 4223. Oral and written communication in the physiological sciences; critical review of physiological literature.

LAB 4243* Introductory Pharmacology. Prerequisite(s): 3204 or 4215. 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.

LAB 4273 Environmental Physiology. Prerequisite(s): 3204 or 4215. Environmental, comparative and ecological physiology of nonhuman animals, with emphasis on vertebrates. Thermoregulation, osmoregulation, comparative aspects of respiratory, circulatory, digestive, muscle, and sensory physiology, and adaptations to environment. No credit for students with credit in 5273. (Same course as 5273*)

LAB 4283 Endocrinology. Prerequisite(s): 3204 or 4215 and CHEM 3015 or consent of instructor. Examination of the hormonal control and regulation of physiological processes in vertebrates. Function of the hypothalamus, pituitary, adrenal, thyroid, pancreas, ovary and testis; comparative endocrinology. No credit for students with credit in 5283. (Same course as 5283*)

LAB 4293 Behavioral Neuroendocrinology. Prerequisite(s): 3204 or 4215. 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 ZOOL 5293. (Same course as 5293)

LAB 4303 Organismal Ecotoxology. Prerequisite(s): BIOL 1114 or equivalent and CHEM 1215 or 1314 and junior standing. 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 5303)

LAB 4313 Animal Communication. Prerequisite(s): A course in animal behavior or behavioral ecology recommended. Animal communication explores modes of information transfer across the animal kingdom, including: visual, auditory, chemical, electric, and tactile signals. This course explores signal production, reception, and feedback loops, and discusses the evolution, design and reliability of signals. The course covers the theories that attempt to explain signal function and evolution. Ultimately, the student will gain a general appreciation for the basic principles of animal communication. No credit for credit in 5313.

ZOO 5353 Neurophysiology. Prerequisite(s): A course in physiology. Provides an introduction to the neural mechanisms controlling general physiological processes and behavior, with discussion focused on basic theories and principles in brain function. No credit for students with credit in 5353.

ZOO 4413* Biology of Fishes. Lab 1. Prerequisite(s): ZOOL 1604. Ecology and evolution of particular emphasis on physiology, morphology, behavior, and taxonomy; laboratory emphasis on Oklahoma species. Offered fall semester of even-numbered years. Weekend field trips required.

ZOO 4434* Limnology. Lab 3. Prerequisite(s): BIOL 3034. Physical, chemical, and biological factors in lakes and streams.

ZOO 4464* Ornithology. Lab 3. Prerequisite(s): 1604. Classification, evolution, distribution, identification, life histories, and morphological, ecological, and behavioral adaptations of birds. Two weekend field trips required. (Same course as NREM 4464)

ZOO 4484 Aquatic Entomology. Lab 2. Prerequisite(s): ENTO 2993 or ZOOL 1604. Biology, taxonomy and ecology of insects and other invertebrates inhabiting freshwater environments. Emphasis is placed on 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. Linkages between aquatic systems and terrestrial systems are also examined. No credit for students with credit in 5484 or ENTO 5484. (Same course as ENTO 4484)

ZOO 4503 Genetics Laboratory Investigations. Lab 6. Prerequisite(s): Completion of BIOL 3023 with a minimum grade of "C" or consent of instructor. Laboratory course to complement BIOL 3023 General Genetics. Experiments on Mendelian, microbial, Drosophila, molecular and population genetics. Techniques including, Drosophila manipulations, DNA isolation, electrophoresis, PCR, DNA sequencing and analyses, cloning and biotechnology.

ZOO 4700 Undergraduate Research Problems. 1-4 credits, max 4. Prerequisite(s): Consent of instructor. 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.

ZOO 4710 Internships in Zoology. 1-3 credits, max 3. Prerequisite(s): Consent of instructor. Student participation in a research project during an internship in a Zoology-related professional work setting. Graded on a pass-fail basis.

ZOO 4750 Honors Study in Zoology. 1-5 credits, max 5. Prerequisite(s): Honors Program participation. Individual study in the development of zoological concepts. Extensive reading, literature search and special experimentation. An individual problems course for the gifted student.

ZOO 5000* Research for Master's Thesis. 1-6 credits, max 6. Independent research for the MS thesis under the supervision of graduate faculty member.

ZOO 5003* Graduate Orientation and Academic Development. Prerequisite(s): Admission to Zoology graduate program or instructor approval. Prepare first year zoology 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, instruction on finding and securing funding, guidance on how to convert research interests into research proposals, and a milieu for preparation, submission and peer review of external grant/fellowships.

ZOO 5010* Graduate Seminar. 1-3 credits, max 10. Discussion of selected topics.

ZOO 5011* Current, Historical, and Integrative Principles in Zoology. Prerequisite(s): Admission to Zoology graduate program or instructor approval. This course will furnish fundamental concepts in ecology, evolution, and environmental stress for first-year graduate students in zoology (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.

ZOO 5020* Special Problems. 1-4 credits, max 10. Prerequisite(s): Graduate standing and consent of instructor. A report of results obtained is to be placed in department files.

ZOO 5030* Teaching Zoology. 1-3 credits, max 4. Prerequisite(s): Consent of instructor. Supervised teaching in the department. Attendance at seminar on problems involved in teaching zoology in college.

ZOO 5112* Advanced Herpetology. Selected advanced aspects of evolution, systematics, biogeography, natural history, physiology, husbandry, nutrition, ecology, behavior, and population biology of reptiles and amphibians as drawn from the primary literature.

ZOO 5113* Conservation Genetics. Prerequisite(s): Course in genetics strongly recommended. Theory and principles of population genetics as they pertain to issues in conservation, evolution, and environmental stress for first-year graduate students in zoology (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.

ZOO 5114* Conservation Genetics. Prerequisite(s): Conservation Genetics. Prerequisite(s): Course in genetics strongly recommended. Theory and principles of population genetics as they pertain to issues in conservation, evolution, and environmental stress for first-year graduate students in zoology (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.

ZOO 5123 Behavioral Ecology. Prerequisite(s): A course in animals strongly recommended. 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.

ZOO 5133* Evolutionary Ecology. Lab 2. Prerequisite(s): Course in ecology strongly recommended. Ecological concepts dealing with contemporary evolutionary processes, not phylogeny. Life history traits, sociality, kin and group selection, speciation, competition, predation, plant-animal coevolution, niche theory, species diversity and biogeography. General models and mechanisms, with examples drawn from all kingdoms.

ZOO 5243* Ecological Immunology. The causes and consequences of variation in immunity studies within the context of evolution and ecology. Introduction to grant writing. A combination of lectures and student-led presentations intended for graduate students and advanced undergraduates.

ZOO 5273* Environmental Physiology. Prerequisite(s): 3204 or 4215 or equivalent. Environmental, comparative and ecological physiology of nonhuman animals with emphasis on vertebrates. Thermoregulation, osmoregulation, comparative aspects of respiratory, circulatory, digestive, muscular, endocrinology, and as related to sensory physiology and adaptations to extreme environments. No credit for students with credit in 4273. (Same course as 4273)

ZOO 5283* Endocrinology. Prerequisite(s): 3204 or 4215 and CHEM 3015 or consent of instructor. Examination of the hormonal control and regulation...
of physiological processes in vertebrates. Function of the hypothalamus, pituitary, adrenal, thyroid, pancreas, ovary and testes; comparative endocrinology. No credit for students with credit in 4283. (Same course as 4283)

ZOO L 5293* Behavioral Neuroendocrinology. Prerequisite(s): 3204 or 4215. Examination of the influences of nervous and endocrine systems on behavior and vice-versa, in vertebrates including humans. Historical roles 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 4293. (Same course as 4293)

ZOO L 5303* Organismal Ecotoxicology. 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 4303)

ZOO L 5313* Animal Communication. Prerequisite(s): A course in animal behavior or behavioral ecology recommended. Animal communication explores modes of information transfer across the animal kingdom, including: visual, auditory, chemical, electric, and tactile signals. This course explores signal production and perception, and discusses the evolution, design and reliability of signals. The course covers the theories that attempt to explain signal function and evolution. Ultimately, the student will gain a general appreciation for the basic principles of animal communication. No credit for credit in 4313.

ZOO L 5343* Population and Community Ecotoxicology. Prerequisite(s): Course in ecology strongly recommended. 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.

ZOO L 5353 Neurophysiology. Prerequisite(s): A course in physiology. Provides an introduction to the neural mechanisms controlling general biological processes and behavior, with discussion focused on basic theories and principles in brain function. No credit for credit in 4353.

ZOO L 5403* Advanced Wetland Ecology. Prerequisite(s): A course in aquatic ecology or wetland management recommended. 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)

ZOO L 5423* Techniques in Environmental Toxicology. Lab 4. Prerequisite(s): Organic chemistry or instructor consent. 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.

ZOO L 5484* Aquatic Entomology. Lab 2. Prerequisite(s): ENTO 2993 or ZOOL 1604. Biology, taxonomy and ecology of insects and other invertebrates inhabiting freshwater environments. Emphasis is placed on 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. Linkages between aquatic systems and terrestrial systems are also examined. No credit for students with credit in 4484 or ENTO 4484. (Same course as ENTO 5484)

ZOO L 5503* Spatial Ecology and Analysis. Prerequisite(s): Course in ecology strongly recommended. Theory, methods, and models for identifying and quantifying spatial patterns and processes, with a focus on implications for ecological relationships.

ZOO L 5523* Population Ecology. Lab 2.5. Prerequisite(s): BIOL 3034, MATH 1513. 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 NREM 5523)

ZOO L 5603* Elements in Integrative Biology. Prerequisite(s): Courses in biology and chemistry. Explores eco-evolutionary processes using the most fundamental currency atoms of various biogenic elements. Such elemental thought enables integration of several key eco-evolutionary processes operating at various levels of organization (e.g. gene expression, cellular metabolism, foraging behavior, life-history) without any phylogenetic boundaries. This view of biology helps build theory that can describe the functioning and evolution of biological systems.

ZOO L 5623* Ecological Data and Alternative Hypotheses. Prerequisite(s): Course in statistics strongly recommended. 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.
Index

A
Academic Advising 44, 71, 80, 100, 112, 122, 131, 156
Academic Assessment 44
Academic Calendar 5
Academic Deans 6
Academic Enrichment Programs 43
Academic Forgiveness (Undergraduates) 70
Academic Integrity 68, 69
Academic Progress 35, 63, 159
Academic Regulations 63
Academic Services
Academic Advising 44
University Assessment and Testing 45
Academic Suspension 64
Accreditation 11, 71, 80, 99, 111, 120, 122, 125, 131, 140, 141, 152
Adding Courses 67
Adding or Dropping Courses 31
Admission of Freshmen 63
Admission of Transfer Students 63
Admission to Certain Professional Programs 63
Advanced Standing Examinations 66, 67
Allied Health Professions 81
Americans With Disabilities Act (ADA) Compliance Program 53
Application Procedure
How to Apply / When to Apply 15
Readmission 15
Transfers 15
Assessment/Course Placement 63
Athletics Program Mission 12
Auditing Courses 68
Avoiding Victimization
University Police Services 57

B
Bachelor of University Studies 44, 81, 100
Bartlett Center for the Visual Arts and the Gardiner Art Gallery 48
Bicycle Registration 51
Biology Learning Resources Center, The 48
Board of Regents for Oklahoma State University/A&M Colleges 6
Bursar 41

C
Camp Cowboy 30
Campus Life 54
Allied Arts 54
CampusLink 54
Center for Ethical Leadership, The 55
Fraternity & Sorority Affairs 54
Honor and Service Organizations 54
International Students and Scholars 54
Lectures 54
Non-Traditional Student Services 55
Office of Parent and Family Relations 55
Religious Life 55
Service Learning Volunteer Center 55
Student Development Transcript 55
Student Union Activities Board 55
CampusLink 54
Campus Recreation and Wellness 48
Cancelling Enrollment and Withdrawing From The University 31, 64
Career Services 51, 90, 100, 111, 125, 131
Center for Applications of Remote Sensing 88
Center for Family Resilience, The 47
Center for Family Services, The 45
Center for Health Sciences 139
College of Osteopathic Medicine
Accreditation 140
College Curriculum 139
Financial Aid 140
Graduate Medical Education 140
Graduate Programs
Biomedical Sciences 139
Forensic Sciences 140
Honor and Service Organizations 140
Minimum Admission Requirements 139
Selection Factors 139
Degree Programs 28
Faculty 149
Professional Programs, Tuition and Fees 37
Center for Hospitality and Tourism Research, The 47
Center for Innovation and Economic Development 9
Center for Veterinary Health Sciences 141
Accreditation 11, 141
Admission Requirements 141
Application Process 141
Departments
Veterinary Clinical Sciences 142
Veterinary Pathobiology 142
Faculty 149
Graduate Program
Veterinary Biomedical Sciences 141
Internship and Residency Programs 142
Preparatory Requirements 141
Scholarships 141
Tuition and Fees 37
Certificate Programs 28
Changes in Degree Requirements 64
Changing Majors 65
Class Enrollment Maxima 67
Classification of Students 64
Collection of Vertebrates 48
College of Agricultural Sciences and Natural Resources 71
Academic Advising 71
Academic Programs 71
Accreditation 71
College and Departmental Clubs, Organizations and Honor Societies 72
Degree Programs 20, 21
Departments
Agricultural Communications 72
Agricultural Economics 72
Agricultural Education 73
Agricultural Leadership 73
Animal Science 74
Biochemistry and Molecular Biology 75
Biosystems and Agricultural Engineering 76
Entomology and Plant Pathology 76
Horticulture and Landscape Architecture 77
Natural Resource Ecology and Management 78
Plant and Soil Sciences 79
Faculty 143
General Education Requirements 72
Graduate Programs
Agricultural Communications 72
Agricultural Economics 73
Agricultural Education 73
Agricultural Leadership 74
Agriculture 74
Animal Science 75
Biochemistry and Molecular Biology 75
Biosystems Engineering 76
Crop Science 79
Entomology 77
Entomology and Plant Pathology 77
Food Science 75
Horticulture 78
International Agriculture 78
Natural Resource Ecology and Management 79
Plant and Soil Sciences 79
Plant Pathology 79
Soil Science 79
Graduation Requirements 72
High School Preparation and Admission Requirements 71
Interdisciplinary Program
Environmental Sciences 77
Scholarships  71
Special Academic Programs  71
Transfer Students  71
College of Arts and Sciences  80
Academic Programs  80
Accreditation  11, 80
Certificate in Geographic Information Systems  88
Certificate in TESOL (Teaching English to Speakers of Other Languages)  87
Degree Programs  22, 23
Departmental Clubs and Honor Societies  82
Departments
Aerospace Studies  93
Art  83
Biochemistry and Molecular Biology  83
Botany  84
Chemistry  85
Communication Sciences and Disorders  85
Computer Science  86
Economics and Legal Studies in Business  86
English  87
Foreign Languages and Literatures  88
Geography  88
History  89
Mathematics  90
Microbiology and Molecular Genetics  92
Military Science  93
Music  93
Philosophy  94
Physics  94
Political Science  95
Psychology  96
Sociology  97
Statistics  97
Theatre  97
Zoology  97
Faculty  144
General Education Requirements  81
Graduate Programs
Biochemistry and Molecular Biology  75, 84
Botany  84
Cell and Molecular Biology  92
Chemistry  85
Communication Sciences and Disorders  85
Computer Science  86
Economics  86
English  87
Fire and Emergency Management Administration  96
Geography  88
Geology  89
History  89
Mass Communications  91
Mathematics  90
Microbiology  92
Music  93
Philosophy  94
Physics  94
Plant Science  84
Political Science  95
Psychology  96
Sociology  97
Statistics  97
Theatre  97
Zoology  98
Graduation Requirements  81
High School Preparation  80
Interdisciplinary Programs
American Studies  83
Gender and Women’s Studies  89
Liberal Studies  90
Religious Studies  96
Scholarships  80
Schools
Boone Pickens School of Geology  89
School of Media and Strategic Communications  90
Special Academic Programs  81
Student Success Center  80
College of Education  99
Academic Advising  100
Academic Programs  100
Athletic Training  102
Aviation and Space Education  105
Career and Technical Education  103
Health and Human Performance  102
Health Education and Promotion  102
Leisure Studies  102
Physical Education  102
Accreditation  99
Admission Requirements  99
Degree Programs  24
Departmental Clubs and Honor Societies  101
Education Outreach and International Studies  101
Faculty  146
General Education Requirements  101
Graduate Program Requirements, Application Procedures and Financial Aid  105
Graduate Programs
Applied Educational Studies  105
Community Counseling  101
Counseling and Counseling Psychology  101
Counseling Psychology  101
Education  105, 107
Educational Leadership and Policy Studies  106
Educational Psychology  102
Educational Research and Evaluation  107
Educational Technology  107
Graduate Certification Programs - Professional Education  108
Health, Leisure and Human Performance  102
Health and Human Performance  102
Leisure Studies  102
School Counseling  101
School Psychology  102
Social Foundations  107
Teaching, Learning and Leadership  104
High School Preparation  99
NASA Education Projects  106
Professional Education Unit  108
Scholarships  99
Schools
School of Applied Health and Educational Psychology  101
School of Educational Studies  105
School of Teaching and Curriculum Leadership  103
Special Academic Programs  100
Watson Family Student Success Center  100
College of Engineering, Architecture and Technology  111
Academic Advising  112
Academic Programs  111
Accreditation  111
CEAT Honors Program  112
Degree Programs  25, 26
Departmental Clubs and Honor Societies  111
Division of Engineering Technology  122
Construction Management Technology  123
Electrical Engineering Technology  123
Fire Protection and Safety Technology  124
Mechanical Engineering Technology  124
Faculty  146
General Education Requirements  112
Graduate Programs
Engineering Technology Management  117
High School Preparation  112
Scholarships  112
Schools
Architecture  120
Biosystems and Agricultural Engineering  113
Chemical Engineering  114
Civil and Environmental Engineering  115
Electrical and Computer Engineering  115
General Engineering  117
Industrial Engineering and Management  117
Mechanical and Aerospace Engineering  118
Schools of Engineering  111
Academic Advising  125
Academic Programs  125
Accreditation  125
Career Services  125
Degree Programs  25
Course Numbering System 66
Courses Offered Through Outreach and Correspondence 66
Cowboy Community Standards 59
Credit by Exam 16, 66
Crime Awareness 56
Curricular Deficiencies and Remediation 15
Curricular Requirements 15, 16

D

Date of Matriculation 64
Deadline for Completion of Requirements 65
Degree Programs 20
Certificate Programs 28
Minors 29
Diploma Application 70
Diversity Academic Support 13
Doctor of Education (EdD) Degree Programs 164
Doctor of Philosophy (PhD) Degree Programs 165
Double Majors and Minors 65
Drop/Withdrawal Refund Policy 38
Dropping Courses 31, 67

E

Early Childhood Education 45
Ecotoxicology and Water Quality Research Laboratory 49
Engagement Skills Trainer (EST 2000) 48
English Composition Requirement 65
English Language Institute 9, 45
English Proficiency Requirement 15, 63
Enrollment 30
Estimated Total Expenses for Students 36
Ethics Center 46
Explanation of Course Descriptions 193

F

Facilities 12
Faculty and Staff Enrollment in University Courses 32
Family and Graduate Student Housing 39, 52
Family Educational Rights and Privacy Act 32
Federal/State Aid Programs 34
Federal Work-Study 35
Final Exam Overload 65
Financial Obligation 41
Foreign Language Credit for Native Speakers 66
Freshman Admission Requirements 15
Fulbright Resource Center 10
Full-Time Students 64
Funding your Graduate Education 152

G

Gardiner Art Gallery 83
General Education 10
General Education Requirements 65, 72, 81, 101, 112, 132
Geographic Information Systems Certificate 81
Gerontology Institute 46
Good Academic Standing and Scholastic Requirements for Continuing
Enrollment of a Student Under Academic Probation in an
Undergraduate College 63
Grade-Point Average Calculating 69
Grade-Point Average for Graduation 70
Grade-Point System 69
Grade Appeals 69
Grade Interpretation 68
Grade Reports 32, 69
Grades, Grades and Grading 88
Graduate Certificate Programs 28, 162
Graduate College 152
Academic Calendar 151
Academic Regulations 158
Doctor of Education (EdD) Degree Programs 164
Doctor of Philosophy (PhD) Degree Programs 165
Enrollment 157
General Regulations 152
Graduate Certificate Programs 162
Graduate Minors 162
Graduate Programs Offered at OSU 160
Interdisciplinary Degree Programs 28

Master’s Degree Programs 162
Services for Graduate Students 152
Specialist in Education (EdS) Degree Program 164
Special Programs 154
Summary of Procedure for Doctoral Degree 168
Summary of Procedure for Master’s Degree 167
Graduate College Academic Calendar 151
Graduate Credit Hours for a Senior 66
Graduate Faculty 169
Members 169
Graduate Medical Education 140
Graduate Programs
Accounting 132
Agricultural Communications 72
Agricultural Economics 73
Agricultural Education 73
Agricultural Leadership 74
Agriculture 74
Animal Science 75
Applied Educational Studies 104
Biochemistry and Molecular Biology 75, 84
Biosystems Engineering 76, 113
Botany 84
Business Administration
Master of Business Administration 133
MBA and PhD - Entrepreneurship 134
MBA and PhD - Finance 135
MBA and PhD - Management 135
MBA and PhD - Management Science and Information Systems 136
MBA and PhD - Marketing 137
Cell and Molecular Biology 92
Chemical Engineering 114
Chemistry 85
Civil and Environmental Engineering 115
Communication Sciences and Disorders 85
Community Counseling 101
Computer Science 86
Counseling and Counseling Psychology 101
Counseling Psychology 101
Crop Science 78
Design, Housing and Merchandising 126
Economics 86, 133
Education 105, 107
Educational Leadership and Policy Studies 105
Educational Psychology 102
Educational Research and Evaluation 107
Educational Technology 106
Electrical Engineering 115
Engineering Technology Management 117
English 87
Entomology 76
Entomology and Plant Pathology 76
Environmental Sciences 77
Fire and Emergency Management Administration 96
Food Science 74
General Agriculture 74
Geography 88
Geology 89
Graduate Certification Programs - Professional Education 107
Health, Leisure and Human Performance 102
Health and Human Performance 102
History 89
Horticulture 77
Hotel and Restaurant Administration 127
Human Development and Family Science 128
Industrial Engineering and Management 117
Interdisciplinary Studies 105
Journalism and Broadcasting 91
Leisure Studies 102
Mass Communications 91
Materials Science and Engineering 118
Mathematics 90
Mechanical and Aerospace Engineering 119
Microbiology 92
Music 93
Natural Resource Ecology and Management 78
Nutritional Sciences 129
Philosophy 94
Physics 94
Plant and Soil Sciences 79
Plant Pathology  76
Plant Science  85
Political Science  95
Psychology  96
Quantitative Financial Economics  135
School Counseling  101
School Psychology  101
Social Foundations  107
Sociology  97
Soil Science  79
Statistics  97
Teaching, Learning and Leadership  104
Telecommunications Management  136
Theatre  97
Veterinary Biomedical Sciences  141
Zoology  97
Graduate Sections of Mixed Credit 3000 or 4000-level Courses  67
Graduation Requirements  70
Graduation With Distinction  70
Grants  34
Great Plains Interactive Distant Education Alliance  46

H
Health Services, University  53
Henry Bellmon Office of Scholar Development and Recognition  43
Herbarium  49
Higher Learning Commission  11
High School Teaching Preparation  81
History, The  8
Honor Rolls  69
Honors College  43, 81
Housing and Residential Life  52
Family and Graduate Student Housing  52
Mobility Impaired Student Housing  52
Residence Hall Student Organizations  52
Traditional Halls, Suites and Apartments  52
Housing and Residential Life Rates  39
Apartments  39
Family and Graduate Student Housing  39
Residence Halls  39

I
Identification card  30
ID Services  30
ILP Program  13
Immunization Requirements  17
In-State/Out-of-State Status of Enrolled Students  17
Incomplete Grade  68
Information Technology  51
Institute for Teaching and Learning Excellence, The  46
Institutional Diversity  13
Diversity Academic Support  13
ILP Program  13
Oklahoma Louis Stokes Alliance for Minority Participation  14
RISE Jumpstart Program  14
RISE Program  14
Student Support Services Program  14
Title IX  13
Upward Bound  14
International Outreach Unit  9
International Studies and Outreach  9
School of International Studies  9
Wes Watkins Center Conference and Meeting Services  10
International Undergraduate Admissions  19
Application Procedure  19
Mandatory Health Insurance for Non-immigrant Students  19
Transfer Admission  19

L
Late Enrollment  31, 67
LASSEO-Learning and Student Success Opportunity Center  44
Library  49
Loans  35

M
M. B. Seretean Center for the Performing Arts  49
Majors
Accounting  132
Aerospace Administration and Operations  105
Agribusiness  73
Agricultural Communications  72
Agricutural Economics  72
Agricultural Education  73
Agricultural Leadership  73
American Studies  83
Animal Science  74
Architectural Engineering  120
Architecture  120
Art  83
Athletic Training  102
Biochemistry  63
Biochemistry and Molecular Biology  75, 83
Biological Science  84
Biosystems Engineering  76, 113
Botany  84
Career and Technical Education  103
Chemical Engineering  114
Chemistry  85
Civil Engineering  115
Communication Sciences and Disorders  85
Computer Science  86
Construction Management Technology  123
Design, Housing and Merchandising  126
Economics  86, 133
Electrical Engineering  115
Electrical Engineering Technology  123
English  87
Entomology  76
Entrepreneurship  134
Environmental Science  77
Finance  134
Food Science  74
French  88
General Business  131
Geography  86
Geology  89
German  88
Health Education and Promotion  101
History  89
Horticulture  77
Hotel and Restaurant Administration  127
Human Development and Family Science  128
Industrial Engineering and Management  117
International Business  138
Landscape Architecture  77
Landscape Management  78
Leisure Studies  102
Liberal Studies  90
Management  135
Management Information Systems  136
Marketing  137
Mathematics  90
Mechanical Engineering  119
Mechanical Engineering Technology  122
Microbiology/Cell and Molecular Biology  92
Multimedia Journalism  91
Music  93
Music Education  93
Natural Resource Ecology and Management  78
Nutritional Sciences  129
Philosophy  94
Physical Education  102
Physics  94
Physiology  97
Plant and Soil Sciences  79
Political Science  95
Psychology  96
Russian Language and Literature  88
Sociology  96
Spanish  88
Sports Media  91
Statistics  97
Strategic Communication  91
Theatre  97
Zoology  97
Mandatory Fees for Special Services  37
Mandatory Health Insurance for Non-immigrant Students  19
### N
- National Student Exchange 46
- New Student Orientation and Enrollment 30

### O
- Oak Ridge Associated Universities 9
- Office of Equal Opportunity 13
- Office of Scholarships and Financial Aid 34
- Office of the Bursar 41
- Office of the Registrar 31
- Office of the Vice President for Research and Technology Transfer 8
- Office of University Research Compliance 8
- Office of University Research Services 8
- Official Records 32
- Official Transcripts 32, 68
- Oklahoma Louis Stokes Alliance for Minority Participation 14
- Oklahoma Scholar Leadership Enrichment Program 43
- Oklahoma State Regents for Higher Education 6
- Oklahoma Technology and Research Park 9
- Oklahoma Transportation Center 115
- Orange Key Account (O-KEY) 30
- Orientation and Enrollment 30
- OSU-Mexico Liaison Office 9
- OSU-Oklahoma City 11, 60
  - Career Technology Center Cooperative Agreements 61
  - Higher Education Cooperative Agreements 61
- OSU-Tulsa 11
- OSU Academic Unit Outreach 10
- OSU Alumni Association 60
- OSU Foundation 60
- OSU Institute of Technology 11, 61
- OSU Library System 49
- Government Documents 49
- Oklahoma Oral History Research Program 49
- Special Collections/University Archives 49
- OSU University Assessment and Testing Center 45
- OSU Tulsa 62
- Outreach 9

### P
- Parking and Transportation Services 51
- Part-Time Student Classification 64
- Pass-Fail Grading System 69
- Pass-No Pass Grading System 69
- Payment of Graduation Fees 70
- Payment of Tuition and Fees 67
- Payment Option Plan 41
- Peace Corps Support 10
- Phi Beta Delta 10
- Physical Examination 17
- Placement Exams 30
- Pre-Finals Week 65
- Pre-Law, Pre-Medicine and other Pre-Professional Programs 46
- Pre-Law Preparation 81
- Pre-professional Programs in the Health Professions 81
- Prerequisite Course Work for Admission to a Graduate Program 35
- Prerequisites to Upper-division and Graduate-division Courses 67
- Presence at Commencement Exercises 70
- Priority Enrollment 31, 67
- Professional Education 70
- Professional Education Certification 35
- Psychological Services Center 46
- Public Safety 56

### R
- Readmission 15, 17, 64
- Refunds 38
  - Drop/Withdrawal Refund Policy 38
  - Refund Policy for Students Entering Military Service 39
  - Repayment Policy 39
- Regents’ Resolution on Disruption of the Educational Process 59
- Registrar 31
- Reinstatement After Academic Suspension 64
- Requirements for Honors Degrees 43
- Research 8
  - Center for Innovation and Economic Development 9
  - High Performance Computing Center 8
  - National Energy Solutions Center 8
  - Oak Ridge Associated Universities 9
  - Office of University Research Compliance 8
  - Office of University Research Services 8
  - Research Administration office 9
  - Technology Development Center 8
  - University Center for Proposal Development 8
  - Research Centers 9
  - Residence Credit 66
  - Residence Credit Requirements 70
  - Residence Hall Student Organizations 51
  - Residence Waiver for Certain Premedical Students 70
  - Return to Title IV Funds Policy 35
- RISE Jumpstart Program 14
- RISE Program 14

### S
- Satisfactory Academic Progress 63
- Scholarship Programs 34
- School of Hotel and Restaurant Administration Experiential Learning Laboratories 50
- School of International Studies 9
- Second Baccalaureate Degree 65
- Semester Credit Hour 66
- Seretean, M.B. Center for the Performing Arts 49
- Services for Graduate Students 152
- Sexual Assault 57
  - Procedures to Follow 57
  - What to do if Victimized 57
- Six Week Progress Reports 32, 69
- Spears School of Business 131
  - Academic Advisement and Enrollment Procedure 131
  - Academic Programs 131
  - Accreditation 131
  - Career Services 131
  - Degree Programs 27
  - Departmental Clubs and Honor Societies 132
  - Departments
    - Economics and Legal Studies in Business 133
    - Finance 134
    - Management 135
    - Management Science and Information Systems 136
    - Marketing 137
  - Faculty 148
- General Education Requirements 132
- Graduate Certificate in Business Data Mining 137
- Graduate Programs
  - Accounting 132
  - Business Administration
    - Master of Business Administration 133
    - MBA and PhD - Entrepreneurship 134
    - MBA and PhD - Finance 135
    - MBA and PhD - Management 136
    - MBA and PhD - Management Science and Information Systems 137
    - MBA and PhD - Marketing 137
  - Economics 133
  - Management Information Systems 136
  - Quantitative Financial Economics 135
  - Telecommunications Management 136
- High School Preparation 131
- Lower-Division Requirements 132
- Management Information Systems 136
- SAS/OSU Data Mining Certificate 137
- Scholarships 131
- Schools
  - School of Accounting 132
U
Undergraduate Admissions 15
Application Procedure 15
Freshman Admission Requirements 15
Special Freshman Admission Programs 15
Transfer Admission 16
Undergraduate Certificate Programs 28
University Academic Calendar 5
University Academic Regulations 63
University Assessment and Testing 45
OSU Testing Center 45
University Conduct Office 58
University Counseling Services 53
University Dining Services 39, 53
Meal Plan Charges 40
University Faculty 143
University Health Services 53
University Multispectral Laboratories 9
University Police Services 56
Upward Bound 14

V
Vehicle Registration and Parking Regulations 51
Violation of Academic Integrity 67
Vivia Locke Theatre 49

W
Waiving of Required Courses 65
Welcome Week 30
Wes Watkins Center Conference and Meeting Services 10
Withdrawing from the University 31
Writing Center 47

T
Testing Center 45
Theatre 49
The Honors College 43, 65, 71, 81, 100, 112, 126, 131
The Mission 8
The University 8
Title IX 13
Transcript Request 32
Transcripts 32
Transfer Credit Evaluation 16, 19
Transfer Credit From Community Colleges 66
Transfer Credit From International Colleges and Universities 66
Transfer Credit From Other Accredited Four-Year Institutions 66
Transit Services 51
Tuition, Fees and Cost Estimates 36
Tuition and Fees 36
College Based Fees 38
Special Fees 37
Tuition and Fee Waivers for Faculty and Staff 38
Tuition Scholarships 34
Tulsa Shuttle 51