BIOCHEMISTRY AND MOLECULAR BIOLOGY: PRE-MEDICAL OR PRE-VETERINARY SCIENCE, BSAG

Requirements for Students Matriculating in or before Academic Year 2019-2020. Learn more about University Academic Regulation 3.1 (http://catalog.okstate.edu/university-academic-regulations/#matriculation).

Minimum Overall Grade Point Average: 2.00
Total Hours: 120

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1113</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td>or ENGL 1313</td>
<td>Critical Analysis and Writing I</td>
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<td>ENGL 1213</td>
<td>Composition II</td>
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<tr>
<td>ENGL 1413</td>
<td>Critical Analysis and Writing II</td>
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<td>ENGL 3323</td>
<td>Technical Writing</td>
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<tr>
<td>HIST 1103</td>
<td>Survey of American History</td>
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<td>HIST 1483</td>
<td>American History to 1865</td>
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<td>HIST 1493</td>
<td>American History Since 1865</td>
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<td>POLS 1113</td>
<td>American Government</td>
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<tr>
<td>MATH 2144</td>
<td>Calculus I (A)</td>
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<tr>
<td>AGCM 3103</td>
<td>Written Communications in Agricultural Sciences and Natural Resources</td>
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<tr>
<td>BCOM 3113</td>
<td>Written Communication</td>
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<td>BCOM 3443</td>
<td>Business Communication for International Students</td>
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<tr>
<td>AGCM 3203</td>
<td>Oral Communications in Agricultural Sciences &amp; Natural Resources</td>
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<tr>
<td>SPCH 2713</td>
<td>Introduction to Speech Communication</td>
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<td>SPCH 3733</td>
<td>Elements of Persuasion</td>
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<tr>
<td>BIOC 3723</td>
<td>Biochemistry and Molecular Biology Laboratory</td>
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<td>BIOC 3813</td>
<td>Biochemistry II</td>
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<td>BIOL 1114</td>
<td>Introductory Biology (LN)</td>
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<tr>
<td>BIOL 1604</td>
<td>Animal Biology</td>
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<tr>
<td>or PBIO 1404</td>
<td>Plant Biology (LN)</td>
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<tr>
<td>CHEM 1515</td>
<td>Chemistry II (LN)</td>
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<td>CHEM 3053</td>
<td>Organic Chemistry I</td>
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<td>CHEM 3112</td>
<td>Organic Chemistry Laboratory</td>
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<td>CHEM 3153</td>
<td>Organic Chemistry II</td>
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<td>MATH 2153</td>
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<td>STAT 2013</td>
<td>Elementary Statistics (A)</td>
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<td>STAT 4013</td>
<td>Statistical Methods I (A)</td>
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<tr>
<td>MICR 2123</td>
<td>Introduction to Microbiology</td>
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Group 1:
- PLNT 1213 - Introduction to Plant and Soil Systems
- HORT 1013 - Principles of Horticultural Science (LN)
- NREM 1113 - Elements of Forestry

Group 2:
- SOIL 1113 - Land, Life and the Environment (N)
- SOIL 2124 - Fundamentals of Soil Science (N)

Group 3:
- ANSI 1124 - Introduction to the Animal Sciences
- FDSC 1133 - Fundamentals of Food Science
- ENTO 2993 - Introduction to Entomology (LN)
- ENTO 3003 - Livestock Entomology

Group 4:
- NREM 1014 - Introduction to Natural History (LN)
- NREM 2013 - Ecology of Natural Resources
- ENVR 1113 - Elements of Environmental Science
- BIOC 2344 - Chemistry and Applications of Biomolecules
- BIOC 3713 - Biochemistry I
- LA 1013 - Introduction to Landscape Architecture and Landscape Management

Additional General Education

Courses designated (A), (H), (N), or (S)

Hours Subtotal: 40
MICR 2132  Introduction to Microbiology Laboratory  2
PHYS 1114  College Physics I (LN)  4
  or PHYS 2014  University Physics I (LN)  4
PHYS 1214  College Physics II (LN)  4
  or PHYS 2114  University Physics II (LN)  4

Related Courses
Option:
Select an option (p. 2)  20
Hours Subtotal  63

Electives
Select 4 hours or hours to complete required total for degree.  4
Hours Subtotal  4
Total Hours  120

1 College & Departmental requirements that may be used to meet GE requirements.
2 If ENGL 3323 Technical Writing is substituted for ENGL 1213 Composition II above; hours in this block are reduced by 3.
3 If used as (S) course above, hours in this block reduced by 3.

Options
Option 1
With the approval of the advisor, department head, and dean, hours of basic sciences from an accredited chiropractic, dental medial, optometry, osteopathic, pharmacy, podiatry, or veterinary medical school to total 57 hours.

Option 2
Code  Title  Hours
Bioc 3223  Physical Chemistry for Biologists  3
  or Chem 3433  Physical Chemistry I
Bioc 4883  Senior Seminar in Biochemistry  3
Select one of the following:  3
  Biol 3023  General Genetics
  Ansi 3423  Animal Genetics
  Plnt 3554  Plant Genetics and Biotechnology
Select one of the following:  4
  Biol 3204  Physiology
  Ento 3044  Insect Morphology and Physiology
  Pbio 4463  Plant Physiology
Select a minimum of 6 hours of Bioc or courses related to Bioc, subject to Advisor approval, of the following:  7
  Ansi 3433  Animal Breeding
  Ansi 3443  Animal Reproduction
  Ansi 3543  Principles of Animal Nutrition
  Bioc 1990  Freshman Research in Biochemistry and Molecular Biology (up to 2 hours) 1
  Bioc 2202  Medicine and Molecules
  Bioc 2352  Fundamental Biochemistry
  Bioc 3003  Hypothesis-Driven Undergraduate Research
  Bioc 4113  Molecular Biology
  Bioc 4523  Biochemistry of the Cell
  Bioc 4723  Introduction to Bioinformatics

Bioc 4990  Undergraduate Research 1
Biol 3034  General Ecology
Biol 3104  Invertebrate Zoology
Biol 3114  Vertebrate Zoology
Biol 3214  Human Anatomy
Biol 3233  Human Reproduction
Biol 4104  General Parasitology
Biol 4133  Evolution
Biol 4134  Embryology
Biol 4174  Mammalogy
Biol 4215  Mammalian Physiology
Biol 4223  Mammalian Physiology Laboratory
Biol 4283  Endocrinology
Biol 4293  Behavioral Neuroendocrinology
Biol 4363  Principles of Toxicology
Chem 2113  Principles of Analytical Chemistry
Chem 2122  Quantitative Analysis Laboratory
Chem 3353  Descriptive Inorganic Chemistry
Chem 3532  Physical Chemistry Laboratory
Chem 3553  Physical Chemistry II
Chem 4320  Chemical and Spectrometric Identification of Organic Compounds
Ento 4573  Introduction to Forensic Entomology
Ento 4854  Medical and Veterinary Entomology
Math 2163  Calculus III
Math 2233  Differential Equations
Math 3013  Linear Algebra (A)
Math 3263  Linear Algebra and Differential Equations
Mirc 3143  Medical Mycology
Mirc 3154  Food Microbiology
Mirc 3223  Advanced Microbiology
Mirc 3253  Immunology
Mirc 4012  Molecular Microbiology Laboratory I
Mirc 4013  Microbial Physiology & Ecology
Mirc 4112  Molecular Microbiology Capstone
Mirc 4123  Virology
Mirc 4203  Bioinformatics
Mirc 4053  Pathogenic Microbiology
Mirc 4052  Pathogenic Microbiology Lab
Mirc 4233  Advanced Cell and Molecular Biology
Mirc 4253  Concepts in Medical Genetics
Mirc 4263  Microbial Genetics: from Genes to Genomes
Mirc 4323  Biological Energy Transduction
Mirc 4423  Antibiotics and Antibiotic Resistance
Nsci 4023  Nutrition in the Pathophysiology of Chronic Disease
Nsci 4123  Human Nutrition and Metabolism I
Nsci 4143  Human Nutrition and Metabolism II
Pbio 4233  Plant Anatomy
Pbio 4462  Plant Physiology Laboratory
Pbio 4423  Plant Mineral Nutrition
Phys 4313  Molecular Biophysics
<table>
<thead>
<tr>
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<tr>
<td>PLNT 4353</td>
<td>Plant Breeding</td>
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<tr>
<td>STAT 4013</td>
<td>Statistical Methods I (A) (if not used as (A) above)</td>
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</table>

Total Hours 20

1 Total hours of BIOC 1990 Freshman Research in Biochemistry and Molecular Biology and BIOC 4990 Undergraduate Research may not exceed 10 hours.

Other Requirements

- A minimum of 40 semester credit hours and 100 grade points must be earned in courses numbered 3000 or above.
- A 2.00 GPA or higher in upper-division hours.

Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for 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.
- Degrees that follow this plan must be completed by the end of Summer 2025.