Biomedical Sciences, BS

Requirements

The Bachelor of Science with a major in biomedical sciences requires a minimum of 120 s.h., including at least 80-84 s.h. of work for the major. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences GE CLAS Core.

The interdisciplinary major provides an excellent foundation for medical training and for research and/or practice in the chemical, genetic, cellular, and physiological bases of human disease. The curriculum includes required and elective coursework in biochemistry and molecular biology, biology, chemistry, health and human physiology, mathematics, microbiology and immunology, physics, psychology, sociology, and statistics. Students who wish to apply transfer credit toward the major should consult their departmental advisor.

The BS with a major in biomedical sciences requires the following coursework.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Required Courses</td>
<td>65-67</td>
</tr>
<tr>
<td>Elective Courses</td>
<td>15-17</td>
</tr>
</tbody>
</table>

Required Courses

Students complete the following coursework (65-67 s.h.).

Chemistry

Course # | Title | Hours
---|---|---
BMB:3120 | Biochemistry and Molecular Biology I | 3
BMB:3130 | Biochemistry and Molecular Biology II | 3
CHEM:1110 | Principles of Chemistry I | 4
CHEM:1120 | Principles of Chemistry II | 4
CHEM:2210 | Organic Chemistry I | 3
CHEM:2220 | Organic Chemistry II | 3
CHEM:2410 | Organic Chemistry Laboratory | 3

Life Sciences

Course # | Title | Hours
---|---|---
Biol:1411 | Foundations of Biology | 4
Biol:3373 | Human Population Genetics and Variation | 3
HHP:3500 | Human Physiology | 3
MICR:2157-MICR:2158 | General Microbiology - General Microbiology Laboratory (both courses should be taken in the same semester) | 5

One of these:

BIOL:2211 | Genes, Genomes, and the Human Condition | 3
BIOL:2512 | Fundamental Genetics | 4

Mathematics

Course # | Title | Hours
---|---|---
One of these:
MATH:1460 | Calculus for the Biological Sciences | 4
MATH:1550 | Engineering Mathematics I: Single Variable Calculus | 4
MATH:1850 | Calculus I | 4

Statistics

Course # | Title | Hours
---|---|---
This course:
STAT:3510 | Biostatistics | 3

Physics

Course # | Title | Hours
---|---|---
One of these sequences:
PHYS:1511-PHYS:1512 | College Physics I-II | 8
PHYS:1611-PHYS:1612 | Introductory Physics I-II | 8

Social Sciences

Course # | Title | Hours
---|---|---
Both of these:
PSY:1001 | Elementary Psychology | 3
SOC:1010 | Introduction to Sociology | 3-4
One of these:
CPH:1800 | Social and Psychological Determinants of Health: Changing Behavior, Improving Health | 3
PSY:2130 | Advanced Psychology for Pre-Medical Track | 3
PSY:2930 | Abnormal Psychology: Health Professions | 3

Elective Courses

Students complete a total of 15-17 s.h. of elective coursework chosen from the following lists.

Lecture Courses

Course # | Title | Hours
---|---|---
Two of these:
BIOL:2254 | Endocrinology | 3
BIOL:2723 | Cell Biology | 3
BIOL:3212 | Bioinformatics for Beginners | 3
BIOL:3233 | Introduction to Developmental Biology | 3
BIOL:3244 | Animal Behavior | 3
BIOL:3314 | Genomics | 3
BIOL:3343 | Animal Physiology | 3
MICR:3147 | Immunology and Human Disease | 3
MICR:3159 | Bacteria and Human Disease | 3
MICR:3168 | Viruses and Human Disease | 3
May include one of these:

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL:2753</td>
<td>Introduction to Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>PSY:2701</td>
<td>Introduction to Behavioral Neuroscience</td>
<td>4</td>
</tr>
</tbody>
</table>

**Investigative Lab**

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL:3245</td>
<td>Animal Behavior Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:3626</td>
<td>Cell Biology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:3656</td>
<td>Neurobiology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:3676</td>
<td>Evolution Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:3716</td>
<td>Genetics and Biotechnology Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:3736</td>
<td>Developmental Biology Lab</td>
<td>4</td>
</tr>
<tr>
<td>MICR:3165</td>
<td>Genetics of Bacterial Pathogens Lab and Discussion</td>
<td>3</td>
</tr>
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</table>

**Experiential Learning**

The objective of this requirement is to enrich the curriculum through efforts on a research project or other academic experience where a student pursues activities in the biomedical sciences.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>This course:</td>
<td></td>
<td></td>
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<tr>
<td>BIOL:4998</td>
<td>Communicating Research</td>
<td>2</td>
</tr>
<tr>
<td>One of the following:</td>
<td></td>
<td></td>
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<tr>
<td>BIOL:3994</td>
<td>Introduction to Research</td>
<td>4</td>
</tr>
<tr>
<td>(taken twice for 2 s.h. each)</td>
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<tr>
<td>BIOL:4999</td>
<td>Honors Research in Biology</td>
<td>4</td>
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<tr>
<td>(taken twice for 2 s.h. each)</td>
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<tr>
<td>An approved research course equivalent, such as HONR:4990.</td>
<td>4</td>
<td></td>
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<td>Internships, paid hourly research work, or similar experiences conducted over at least two semesters ¹</td>
<td>0-4</td>
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¹ These activities may be used to satisfy the experiential learning requirement. They also may be used to fulfill the experiential learning requirement for the University of Iowa Honors Program. Students should discuss potential activities with academic advisors and, if necessary, obtain approval from the program director for a personalized plan to satisfy the requirement. A final summary of completed and in-progress experiential learning activities, including courses taken, fellowships received, appointments, presentations, and publications, among others, is required to evaluate completion.