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.

Required Courses Hours
Chemistry
- All of these:
  - 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
  - All of these:
    - BIOL:1411 Foundations of Biology 4
    - BIOL:3373 Human Population Genetics and Variation 3
    - HHP:3500 Human Physiology 3
    - MICR:2157-2158 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:1511-1512 College Physics I-II 8
- PHYS:1611-1612 Introductory Physics I-II 8

Social Sciences

Course # Title Hours
Both of these:
- PSY:1001 Elementary Psychology 3
- SOC:1010 Introduction to Sociology 3

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:

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<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
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<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>
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### Investigative Lab

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

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<tr>
<th>Course #</th>
<th>Title</th>
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<tbody>
<tr>
<td>This course:</td>
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<tr>
<td>BIOL:4898</td>
<td>Communicating Research</td>
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<td>One of the following:</td>
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<tr>
<td>BIOL:3994</td>
<td>Introduction to Research (taken twice for 2 s.h. each)</td>
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<tr>
<td>BIOL:4999</td>
<td>Honors Research in Biology (taken twice for 2 s.h. each)</td>
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<td>An approved research course equivalent, such as HONR:4990.</td>
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<td>Internships, paid hourly research work, or similar experiences conducted over at least two semesters</td>
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<td>0-4</td>
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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.