Biology - Biological Sciences Emphasis, BS

Program Description

This B.S. Biology emphasis is designed for students interested in graduate school and seeking a career in research or academia. Students can cater their studies in this degree in multiple areas of biology including, molecular, biochemical, physiological, evolutionary and organismal. It is also the best option for students looking to apply to Veterinary school.

Program Curriculum

120 credits

Utah Tech General Education Requirements

All Utah Tech General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to Utah Tech’s minimum General Education standards in American Institutions, English, and Mathematics.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Education Core Requirements (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)</td>
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<tr>
<td></td>
<td>English</td>
<td>3-7</td>
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<tr>
<td></td>
<td>Mathematics</td>
<td>3-5</td>
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<tr>
<td></td>
<td>American Institutions</td>
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<tr>
<td></td>
<td>Life Sciences</td>
<td>3-10</td>
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<tr>
<td></td>
<td>Physical Sciences</td>
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<tr>
<td></td>
<td>Laboratory Science</td>
<td>0-1</td>
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<tr>
<td></td>
<td>Fine Arts</td>
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<td></td>
<td>Literature/Humanities</td>
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<td></td>
<td>Social &amp; Behavioral Sciences</td>
<td>3</td>
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<tr>
<td></td>
<td>Exploration</td>
<td>3-5</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td></td>
<td>Biology Core Requirements</td>
<td></td>
</tr>
<tr>
<td>BIOL 1610 &amp; BIOL 1615</td>
<td>Principles of Biology I (LS) and Principles of Biology I Lab (LAB)</td>
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<tr>
<td>BIOL 1620 &amp; BIOL 1625</td>
<td>Principles of Biology II and Principles of Biology II Lab</td>
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<tr>
<td>BIOL 3010</td>
<td>Evolution</td>
<td>3</td>
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<tr>
<td>BIOL 3030</td>
<td>Principles of Genetics</td>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>Mathematics &amp; Physical Science Requirements</td>
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<tr>
<td>CHEM 1210 &amp; CHEM 1215</td>
<td>Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 1220 &amp; CHEM 1225</td>
<td>Principles of Chemistry II and Principles of Chemistry II Lab</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 2310 &amp; CHEM 2315</td>
<td>Organic Chemistry I and Organic Chemistry I Lab</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 2320 &amp; CHEM 2325</td>
<td>Organic Chemistry II and Organic Chemistry II Lab</td>
<td>5</td>
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<tr>
<td>MATH 1210</td>
<td>Calculus I (MA)</td>
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Complete one (1) of the following series of courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 2010 &amp; PHYS 2015</td>
<td>College Physics I (PS) and College Physics I Lab (LAB)</td>
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<tr>
<td>PHYS 2020 &amp; PHYS 2025</td>
<td>College Physics II and College Physics II Lab</td>
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</table>
or PHYS 2210  Physics/Scientists Engineers I (PS)  
& PHYS 2215 and Physics/Scientists Engineers I Lab (LAB)  
& PHYS 2220 and Physics/Scientists Engineers II  
& PHYS 2225 and Physics/Scientists Engineers II Lab  

### Additional Biology Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 3040</td>
<td>General Ecology</td>
<td>4</td>
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<tr>
<td>&amp; BIOL 3045</td>
<td>and General Ecology Lab</td>
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</tr>
<tr>
<td>BIOL 3155</td>
<td>Scientific Method and Experimental Design</td>
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</tr>
<tr>
<td>MATH 3060</td>
<td>Statistics for Scientists</td>
<td>3</td>
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Complete one (1) of the following sets of courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 3450</td>
<td>General Microbiology</td>
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</tr>
<tr>
<td>&amp; BIOL 3455</td>
<td>and General Microbiology Lab</td>
<td></td>
</tr>
<tr>
<td>or BIOL 3550</td>
<td>Eukaryotic Cell Biology</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 3555</td>
<td>and Eukaryotic Cell Biology Lab</td>
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Complete one (1) of the following series of courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 4500</td>
<td>Comparative Vertebrate Physiology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BIOL 4505</td>
<td>and Comparative Vertebrate Physiology Lab</td>
<td></td>
</tr>
<tr>
<td>or BIOL 4600</td>
<td>Plant Physiology</td>
<td></td>
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<tr>
<td>&amp; BIOL 4605</td>
<td>and Plant Physiology Lab</td>
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Complete one (1) of the following sets of courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 3200</td>
<td>Invertebrate Zoology</td>
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<tr>
<td>&amp; BIOL 3205</td>
<td>and Invertebrate Zoology Lab</td>
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<tr>
<td>BIOL 4260</td>
<td>Herpetology</td>
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<tr>
<td>&amp; BIOL 4265</td>
<td>and Herpetology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 4270</td>
<td>Ichthyology</td>
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<tr>
<td>&amp; BIOL 4275</td>
<td>and Ichthyology Lab</td>
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</tr>
<tr>
<td>BIOL 4280</td>
<td>Marine Biology</td>
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<tr>
<td>BIOL 4350</td>
<td>Animal Behavior</td>
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<tr>
<td>&amp; BIOL 4355</td>
<td>and Animal Behavior Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 4380</td>
<td>Ornithology</td>
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<tr>
<td>&amp; BIOL 4385</td>
<td>and Ornithology Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 4411</td>
<td>Mammalogy</td>
<td></td>
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<tr>
<td>&amp; BIOL 4415</td>
<td>and Mammalogy Lab</td>
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<tr>
<td>BIOL 4440</td>
<td>General Entomology</td>
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Complete the following seminar course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 4910</td>
<td>Senior Seminar</td>
<td>1</td>
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### Biology Electives

Complete 12 credits of upper-division BIOL coursework not already used to fulfill another requirement. Courses from the following list may also be used to fulfill this requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 3510</td>
<td>Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 3515</td>
<td>and Biochemistry I Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 3520</td>
<td>Biochemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 3525</td>
<td>and Biochemistry II Lab</td>
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### Graduation Requirements

1. Complete a minimum of 120 college-level credits (1000 and above).
2. Complete at least 40 upper-division credits (3000 and above).
3. Complete at least 30 upper-division credits at Utah Tech for institutional residency.
4. Cumulative GPA 2.0 or higher.
5. Grade C or higher required (not C-) in each Program Requirement, Core Discipline Requirement, and Biology Elective Requirement course.
6. Maximum 6 total credits of BIOL 4810R, and/or BIOL 4890R, and/or BIOL 4930R may be used toward Biology requirements.