Bachelor of Science in Biology

Requirements (108-113 units)

Total units required for graduation: 180

Students majoring in Biology may repeat an upper-division Biology course no more than once. Failing any two upper-division Biology courses disqualifies the student from continuation as a Biology major.

Requirements for the B.S. in Biology
(Program Code: BIOL)

Lower-division requirements (56-61)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>Biology of the Cell</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>Biology of Organisms</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>Biology of Populations</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 215</td>
<td>General Chemistry I: Atomic Structure and Chemical Bonding</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 216</td>
<td>General Chemistry II: Principles of Chemical Reactions</td>
<td>6</td>
</tr>
</tbody>
</table>

Organic chemistry

A minimum of twelve units chosen from Group A or B below: 12-15

- **Group A:**
  - CHEM 221A Organic Chemistry I Lecture
  - CHEM 221B Organic Chemistry I Lab
  - CHEM 222A Organic Chemistry II Lecture
  - CHEM 222B Organic Chemistry II Lab
  - CHEM 223A Organic Chemistry III Lecture
  - CHEM 223B Organic Chemistry III Lab

- **Group B:**
  - CHEM 321 Principles of Organic Chemistry I
  - CHEM 322 Principles of Organic Chemistry II
  - CHEM 323 Principles of Organic Chemistry III

Note: The requirement in organic chemistry may be met by the completion of one year of transferable organic chemistry course work from another institution of higher education.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 192</td>
<td>Methods of Calculus</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 211</td>
<td>Basic Concepts of Calculus</td>
<td></td>
</tr>
</tbody>
</table>

A minimum of thirteen units chosen from Group A or B below: 13-15

- **Group A:**
  - PHYS 121 Basic Concepts of Physics I
  - PHYS 122 Basic Concepts of Physics II
  - PHYS 123 Basic Concepts of Physics III

- **Group B:**
  - PHYS 221 General Physics I
  - PHYS 222 General Physics II
  - PHYS 223 General Physics III

Upper-division requirements (52)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 300</td>
<td>Cell Physiology</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 400</td>
<td>Molecular Biology</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 423</td>
<td>Genetics</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 450</td>
<td>Ecology</td>
<td>5</td>
</tr>
<tr>
<td>or BIOL 455</td>
<td>Marine Biology and Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 591</td>
<td>Biology Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

A minimum of 31 units of upper-division elective course work in biology (excluding BIOL 301, BIOL 304, BIOL 305, BIOL 306, BIOL 314, BIOL 349 and BIOL 503, with at least one course from each of Groups A and B below:

- **Group A:**
  - BIOL 319 Local Flora
  - BIOL 354 Biology of Higher Plants
  - BIOL 431 Comparative Plant Physiology

- **Group B:**
  - BIOL 320 Microorganisms
  - BIOL 331 Biology of Invertebrates
  - BIOL 335 Entomology
  - BIOL 340 Comparative Embryology
  - BIOL 342 Biology of Chordates
  - BIOL 420 Medical Microbiology
  - BIOL 424 Comparative Animal Physiology
  - BIOL 440 Principles of Development
  - BIOL 516 Introduction to Regulatory Affairs in the Life Sciences
  - BIOL 517 Laboratory in Human Embryonic Stem Cell Culture
  - BIOL 524 Advanced Vertebrate Morphology
  - BIOL 573 Immunology

Note: CHEM 436A and CHEM 436B may be counted as 5 of the 31 units in upper-division elective course work in Biology.

Total Units 108-113