BS in BIOLOGY (282022) MAP Sheet
Department of Biology
For students entering the degree program during the 2016–2017 curricular year.

<table>
<thead>
<tr>
<th>UNIVERSITY CORE AND GRADUATION REQUIREMENTS</th>
<th>PROGRAM REQUIREMENTS (60 total hours*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIVERSITY CORE REQUIREMENTS</td>
<td>PROGRAM REQUIREMENTS</td>
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<tr>
<td>Requirements</td>
<td>Classes</td>
</tr>
<tr>
<td><strong>Religion Cornerstones</strong></td>
<td></td>
</tr>
<tr>
<td>Teachings &amp; Doctrine, Book of Mormon</td>
<td>1</td>
</tr>
<tr>
<td>Jesus Christ &amp; the Everlasting Gospel</td>
<td>1</td>
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<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
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<tr>
<td>The Eternal Family</td>
<td>1</td>
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<tr>
<td><strong>The Individual and Society</strong></td>
<td></td>
</tr>
<tr>
<td>Citizenship</td>
<td>1–2</td>
</tr>
<tr>
<td>Global &amp; Cultural Awareness</td>
<td>1</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td></td>
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<tr>
<td>Effective Communication</td>
<td>1</td>
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<tr>
<td>First-Year Writing</td>
<td>1</td>
</tr>
<tr>
<td>Adv Written &amp; Oral Communication</td>
<td>1–0</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>0–1</td>
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<tr>
<td>Languages of Learning (Math or Language)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td></td>
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<tr>
<td>Civilization 1 and 2</td>
<td>2</td>
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<tr>
<td>Arts</td>
<td>1</td>
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<tr>
<td>Letters</td>
<td>1</td>
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<tr>
<td><strong>Scientific Principles &amp; Reasoning</strong></td>
<td></td>
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<tr>
<td>Biological Science</td>
<td>1</td>
</tr>
<tr>
<td>Physical Science</td>
<td>2</td>
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<tr>
<td>Social Science</td>
<td>1</td>
</tr>
<tr>
<td><strong>Core Enrichment: Electives</strong></td>
<td></td>
</tr>
<tr>
<td>Religion Electives</td>
<td>3–4</td>
</tr>
<tr>
<td>Open Electives</td>
<td>Variable</td>
</tr>
<tr>
<td><strong>GRADUATION REQUIREMENTS:</strong></td>
<td></td>
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<tr>
<td>Minimum residence hours required</td>
<td>30.0</td>
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<tr>
<td>Minimum hours needed to graduate</td>
<td>120.0</td>
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</tbody>
</table>

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (15 hours overlap)

FOR UNIVERSITY CORE QUESTIONS CONTACT THE ADVISEMENT CENTER ♦ FOR PROGRAM QUESTIONS SEE YOUR FACULTY ADVISOR

**Complete the following:**
- Bio 130* Biology 4.0
- Bio 350 Ecology 3.0
- Bio 420 Evolutionary Biology 2.0
- Bio 421 Evolutionary Biology Lab 1.0
- MMBio 240 Molecular Biology 3.0
- PWS 340 Genetics 3.0

**Complete one course from the following:**
- Bio 220 Biological Diversity: Animals 4.0
- Bio 230 Biological Diversity: Plants 4.0

**Complete the following:**
- Chem 105* General College Chemistry 4.0
- Chem 106 General College Chemistry 3.0
- Chem 107 General College Chem Lab 1.0
- Math 112* Calculus 1 4.0
- Phscs 105* General Physics 1 3.0
- Phscs 106 General Physics 2 3.0
- Phscs 107 General Physics Lab 1 1.0
- Phscs 108 General Physics Lab 2 1.0

**Complete 20 hours of electives from the following:**
- Bio 220 Biological Diversity: Animals 4.0
- Bio 230 Biological Diversity: Plants 4.0
- Bio 370 Bioethics 2.0
- Bio 380 Comparative Animal Physiology 4.0
- Bio 430 Plant Classification & Identification 4.0
- Bio 441 Entomology 3.0
- Bio 442 Advanced Invertebrate Zoology 5.0
- Bio 443 Ichthyology 3.0
- Bio 445 Herpetology 4.0
- Bio 446 Ornithology 3.0
- Bio 447 Mammalogy 3.0
- Bio 450 Conservation Biology 3.0
- Bio 452 Marine Biology 4.0
- Bio 455 Plant Ecology 3.0
- Bio 463 Genetics of Human Disease 3.0
- Bio 465 Bioinformatics 3.0
- Bio 470 History & Phil of Biology 3.0
- Bio 475 Plant Developmental Biology 3.0
- Bio 494R Mentored Research (Up to 2.0 hours allowed) 6.0
- Bio 510 Biological Systematics & Curation 3.0
- Bio 511 Lichenology 3.0
- Bio 512 Angiosperm Phylogeny 3.0
- Bio 525 Animal Disease, Biosecurity, & Zoonoses 3.0
- Bio 541 Aquatic Entomology 4.0
- Bio 556 Limnology 3.0
- Bio 557 Stream & Wetland Ecology 4.0
- Bio 560 Population Genetics 4.0
- Chem 285 Intro Bio-organic Chemistry 4.0
- Chem 351 Organic Chemistry 3.0
- Chem 352 Organic Chemistry 3.0
- Chem 353 Organic Chemistry Lab–Nonmajors 2.0
- Chem 481 Biochemistry 3.0
- MMBio 461 Adv Bacterial Physiology 3.0
- MMBio 465 Virology 3.0
- PDBio 220 Human Anatomy (with lab) 3.0
- PDBio 305 Human Physiology (with lab) 4.0
- PDBio 360 Cell Biology 3.0
- PDBio 362 Advanced Physiology 3.0
- PDBio 363 Adv Physiology Laboratory 1.0
- PWS 440 Plant Physiology 3.0
- Stat 201 Statistics for Engineers & Scientists 3.0

**Note:** Bio 220 and Bio 230, if taken for requirement 2, do not double count here.

**Complete an exit interview.**

**Recommended Courses for Career Options**

**Botany**

Students seeking career and graduate school opportunities in botanical fields should build their electives on a foundation of basic plant biology courses. Coupled with the broad integrative biology core, the following courses provide students with the greatest diversity of options for postgraduate work or training in plant biology:

- Bio 430, 455, 475, 510, 511, 512
- PWS 282, 283, 355, 440, 515

Students completing Bio 430, PWS 330 and 355 often find summer employment opportunities with government land agencies.

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BS in BIOLOGY (282022)  
2016–2017

Students interested in applying to veterinary medicine schools should take the following courses as part of the biology major:

**Required:**
- Bio 220, 291R, 380, 392R.
- Chem 351, 352, 353 (1 hr req.), 481.
- MMBio 221, 222.
- Psych 111.
- Stat 201.
- StDev 150.

**Recommended:**
- MMBio 261, 407, 417.
- PDBio 325, 360, 484.

**Premedical and Predental**

Students interested in applying to medical or dental schools should take the following courses as part of the biology major:
- Chem 351, 352, 353 (2 hours suggested), 481.
- PDBio 220, 305.

**Suggested Sequence of Courses:**

**FRESHMAN YEAR**

1st Semester
- Bio 130 (FW) (Biological Science) 4.0
- Chem 105 (FWSp) 4.0
- First-Year Writing 3.0
  or A Htg 100 (FWSpSu) (3.0)
- Quantitative Reasoning (if needed) 0–3.0
- Religion Cornerstone course 2.0
**Total Hours 13–16.0**

2nd Semester
- Chem 106, 107 (FWSpSu) 4.0
- Math 112 4.0
  or A Htg 100 (FWSpSu) 3.0
  or First-Year Writing (3.0)
- General Elective 3.0
- Religion Cornerstone course 2.0
**Total Hours 16.0**

**SOPHOMORE YEAR**

3rd Semester
- Bio 220 or 230 (FW) 4.0
- Phscs 105 & 107 (FWSp) 4.0
  (Physical Science)
- MMBio 240 (FWSp) 3.0
- Civilization 1 elective 3.0
- Religion Cornerstone course 2.0
**Total Hours 16.0**

4th Semester
- Phscs 106 & 108 4.0
- Biology elective 3.0
- Civilization 2 elective 3.0
- Arts or Letters elective (FWSpSu) 3.0
- Religion Cornerstone course 2.0
**Total Hours 15.0**

**JUNIOR YEAR**

5th Semester
- Bio 350 (FW) 3.0
- PWS 340 (FW) 3.0
- Biology elective 3.0
- Arts or Letters elective 3.0
- Religion elective 2.0
**Total Hours 14.0**

6th Semester
- Biology elective 4.0
- Biology elective 3.0
- Adv. Written & Oral Communication 3.0
- Religion elective 2.0
- General elective 3.0
**Total Hours 15.0**

**SENIOR YEAR**

7th Semester
- Biology elective 5.0
- General elective 4.0
- Social Science elective 3.0
- Religion elective 2.0
**Total Hours 14.0**

**THE DISCIPLINE:**
The biology degree provides students with current, practical knowledge of plants and animals, emphasizing whole organism biology in both ecological and evolutionary contexts. Broad, synthetic training, from molecular to community levels of organization, equips students to address critical issues and contemporary biological problems associated with the long-term preservation of earth’s biodiversity. Elective flexibility allows students to emphasize the botanical or zoological fields, or create a combined program of study. Undergraduate research opportunities may include internships, museum collections curation, bioinventory and data-basing activities, applied molecular genetics, and field and laboratory research in ecology, conservation biology, and evolutionary biology.

**RESEARCH OPPORTUNITIES:**
One objective of this program is to provide solid preparation for post graduate studies. For that reason students should take advantage of research opportunities. Department faculty conduct field and laboratory research on diverse topics (including genetics of human diseases, conservation biology, molecular systematics, evolution of life history strategies, biogeographical ecology, bioinventories, aquatic ecology, and bioassessment).

Undergraduates have studied black bears in Utah, mouse systematics in Mexico, stonelfy and trout biogeography in the western U.S., turtles in Amazonia, insects in Borneo, and fish predation in the Provo River. The mentoring option allows up to 2 hours of Bio 494R research credit.

**FINANCING:**
Students in this major may apply for university, college, and departmental scholarships. A number of research or teaching assistant positions for undergraduate students also exist.