## 2019 - 2020 Major Map
### Biological Sciences (Biology and Society), BS

**School/College:** The College of Liberal Arts and Sciences  
**Location:** Tempe campus  
LABSCSBS

### Term 1 - 15 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIA 101: Student Success in the College of Liberal Arts and Sciences</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 281: Conceptual Approaches to Biology for Majors I (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHM 113: General Chemistry I (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>STP 231: Statistics for Life Science (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 15

- Mathematics Placement Assessment score determines placement in mathematics and science course
- LIA 101, ASU 101, or other First Year Seminar required of all freshman students
- An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses
- Students transferring General Biology I (BIO 181) will fulfill BIO 281 requirement
- Students transferring General Statistics (STP 226 or PSY 230) will fulfill STP 231 requirement
- Select your career interest area and play me3@ASU

### Term 2 - 15 - 32 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 282: Conceptual Approaches to Biology for Majors II</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 251: Calculus for Life Sciences (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete BIO 281 AND BIO 282 course(s).</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
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<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 17

- Join a student organization
- Create a resume & Handshake account with the Career & Professional Development Center
- Explore Research Opportunities
- Attend a Pre-Health 101 Session
- Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Students transferring General Biology II (BIO 182) will fulfill BIO 282 requirement
- Students transferring Calculus (MAT 270 or MAT 210) will fulfill MAT 251 requirement

### Term 3 - 32 - 48 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 340: General Genetics</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>BIO 311: Biology and Society OR HPS 340: Biology and Society</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Term hours subtotal:** 16

- Pre-health students should take CHM 233 and CHM 237 instead of the elective in this term. See pre-health website for more information.
- If CHM 233 and 237 are taken, then CHM 234 and 238 must be taken the following semester
- BIO 311 may be used to satisfy the upper division Science and Society requirement for the College of Liberal Arts and Sciences
• Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
• Attend a Study Abroad 101 Session
• Explore Minors or Certificates

<table>
<thead>
<tr>
<th>Term 4 48 - 63 Credit Hours</th>
<th>Critical course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 345: Organic Evolution</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Literacy and Critical Inquiry (L)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td>Elective</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term hours subtotal:</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
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</tbody>
</table>

Pre-health students should take CHM 234 and CHM 238 instead of the elective in this term. See pre-health website for more information.
If CHM 233 and 237 are taken, then CHM 234 and 238 must be taken the following semester.
Explore or pursue internship opportunities.
Meet with the Career & Professional Development Center to learn how to develop professional skills.

<table>
<thead>
<tr>
<th>Term 5 63 - 77 Credit Hours</th>
<th>Necessary course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 314: Research Colloquium in Biology and Society I (L)</td>
<td></td>
<td>2</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Science in Contemporary Society Interface Course</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CLAS Science and Society Elective</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term hours subtotal:</td>
<td></td>
<td>14</td>
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</tbody>
</table>

Pre-health students should take PHY 111 and 113 instead of PHY 101 this term. See the pre-health website for more information.
BIO 314 is recommended in this term, but can also be taken in Term 7.
BIO 314 is only taught in the Fall semester.
Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; 4+1 Masters Programs; study abroad).
Some upper division Science in Contemporary Society Interface courses require lower division prerequisites which may be taken as electives.
Explore graduate school or full-time opportunities.

<table>
<thead>
<tr>
<th>Term 6 77 - 93 Credit Hours</th>
<th>Necessary course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Division History and Philosophy of Science Interface Course</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Major Biological Sciences Elective</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Social-Behavioral Sciences (SB) OR Upper Division Humanities, Arts and Design (HU)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td>Elective</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).</td>
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<td></td>
</tr>
<tr>
<td>Term hours subtotal:</td>
<td></td>
<td>16</td>
<td></td>
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</tbody>
</table>

Pre-health students should take PHY 112 and 114 this term. See the pre-health website for more information.
Research employment opportunities or graduate school programs.

<table>
<thead>
<tr>
<th>Term 7 93 - 107 Credit Hours</th>
<th>Necessary course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Division Additional Major Core Elective Courses</td>
<td></td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Science in Contemporary Society Interface Courses

- AFR 383: Blacks in Science, Medicine and Public Health
- ASB 353: Death and Dying in Cross-Cultural Perspective ((HU or SB) & G)
- BIO 302: Cancer--Mother of All Diseases (L)
- BIO 304: Plants and Civilization (L)
- ENV 302: Plants and Civilization (L)
- BIO 322: Conservation of Biodiversity
- BIO 323: Ecosystem Restoration and Management
- BIO 412: Conservation in Practice or SOS 412: Conservation in Practice
- BIO 427: Fire (H)
- HPS 311: Origins, Evolution, and Creation

### Upper Division Major Biological Sciences Elective Courses

- BIO 303: Plant Diversity and Evolution (L or SG) or ENV 300: Plant Diversity and Evolution (L or SG)
- BIO 308: Plant Physiology
- BIO 309: Plant Anatomy
- BIO 312: Bioethics (HU) or PHI 320: Bioethics (HU)
- BIO 313: The Flora of Arizona
- BIO 316: History of Biology: Conflicts and Controversies (H) or HPS 330: History of Biology: Conflicts and Controversies (H)
- BIO 320: Fundamentals of Ecology
- BIO 322: Conservation of Biodiversity
- BIO 323: Ecosystem Restoration and Management
- BIO 324: Environmental Ethics (HU) or PHI 310: Environmental Ethics (HU)

### Major Biological Sciences Elective Courses

- BIO 303: Plant Diversity and Evolution (L or SG) or ENV 300: Plant Diversity and Evolution (L or SG)
- BIO 308: Plant Physiology
- BIO 309: Plant Anatomy
- BIO 312: Bioethics (HU) or PHI 320: Bioethics (HU)
- BIO 313: The Flora of Arizona
- BIO 316: History of Biology: Conflicts and Controversies (H) or HPS 330: History of Biology: Conflicts and Controversies (H)
- BIO 320: Fundamentals of Ecology
- BIO 322: Conservation of Biodiversity
- BIO 323: Ecosystem Restoration and Management
- BIO 324: Environmental Ethics (HU) or PHI 310: Environmental Ethics (HU)

### Additional Major Core Elective Courses

- BIO 302: Cancer--Mother of All Diseases (L)
- BIO 304: Plants and Civilization (L) or ENV 302: Plants and Civilization (L)
- BIO 312: Bioethics (HU) or PHI 320: Bioethics (HU)
- BIO 316: History of Biology: Conflicts and Controversies (H) or HPS 330: History of Biology: Conflicts and Controversies (H)
- BIO 322: Conservation Biology and Ecological Sustainability I
- BIO 323: Ecosystem Restoration and Management
- BIO 324: Environmental Ethics (HU) or PHI 310: Environmental Ethics (HU)
- BIO 324: Environmental Ethics (HU) or PHI 310: Environmental Ethics (HU)
- BIO 412: Conservation in Practice or SOS 412: Conservation in Practice
- BIO 416: Biomedical Research Ethics (L) or HPS 410: Biomedical Research Ethics (L)

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- All students pursuing a B.S. or B.S.P. degree in the College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at [https://clas.asu.edu/resources/science-society](https://clas.asu.edu/resources/science-society). At least one of the two courses must be upper division. Students must earn a C or better in the courses, and no more than one of the two can also be used to simultaneously fill a requirement of the major, minor or related area. Science and Society courses cannot also be used to fill the general studies HU, SB, SQ or SG requirements.

- Meet with your advisor to verify remaining degree requirements have been met prior to Term 8
- Explore or apply for full-time career opportunities or graduate school

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<table>
<thead>
<tr>
<th>Term 8 107 - 120 Credit Hours</th>
<th>Necessary course signified by 🫆</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 414: Research Colloquium in Biology and Society II (L)</td>
<td>1</td>
<td>C</td>
<td></td>
<td>BIO 414 is only taught in the Spring semester</td>
</tr>
<tr>
<td>BIO 484: Internship OR BIO 493: Honors Thesis (L)</td>
<td>3</td>
<td>C</td>
<td></td>
<td>Students who complete less than 3 hours of BIO 484 or BIO 485 should plan to complete additional elective hours to reach the minimum 120 total hours required for this degree.</td>
</tr>
<tr>
<td>Upper Division Major Biological Sciences Elective</td>
<td>3</td>
<td>C</td>
<td></td>
<td>BIO 484 or BIO 495 requires the completion of an individualized instruction form and meeting with a faculty member before the semester begins. These are positions and research experience secured by the student on their own.</td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td></td>
<td></td>
<td></td>
<td>Continue to apply for full-time career opportunities or graduate school</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 13
WST 360: Women as Healers (SB & G)

BIO 331: Animal Behavior
BIO 343: Genetic Engineering and Society (L) or MBB 343: Genetic Engineering and Society (L)
BIO 351: Developmental Biology
BIO 353: Cell Biology
BIO 360: Animal Physiology
BIO 370: Vertebrate Zoology
BIO 386: General Entomology
BIO 412: Conservation in Practice or SOS 412: Conservation in Practice
BIO 415: Biometry (CS)
BIO 416: Biomedical Research Ethics (L) or HPS 410: Biomedical Research Ethics (L)
BIO 427: Fire (H)
BIO 431: Genes, Development, and Evolution (L)
BIO 436: Sociobiology and Behavioral Ecology
BIO 440: Functional Genomics or MBB 440: Functional Genomics
BIO 446: Principles of Human Genetics (L) or ASM 446: Principles of Human Genetics (L)
BIO 461: Comparative Animal Physiology
BIO 462: Endocrine Physiology
BIO 467: Neurobiology
BIO 471: Ornithology
BIO 472: Mammalogy
BIO 498: Sonoran Desert Field Botany
BMI 465: Introduction to Comparative Genomics
HPS 311: Origins, Evolution, and Creation
HPS 313: Probability, Evidence, and Decision or PHI 313: Probability, Evidence, and Decision
HPS 314: Philosophy of Science (HU) or PHI 314: Philosophy of Science (HU)
HPS 322: History of Science (HU & H)
HPS 323: History of Science (HU & H) or BIO 317: History of Science (HU & H) or HST 385: History of Chinese Medicine (HU & H & G)
HPS 331: History of Medicine (HU & H) or BIO 318: History of Medicine (HU & H)
HPS 336: Exploration and Science (SB & H)
Notes:

- Please keep in mind that the applicability of a specific transfer course toward an ASU degree program depends on the requirements of the department, division, college or school in which you are enrolled at ASU. Transfer agreements that guarantee the completion of university level requirements do not necessarily meet college and major requirements. Please consult with an advisor for more information.

Total Hours: 120

General University Requirements Legend
General Studies designations listed on the major map are current for the 2019 - 2020 academic year.

General Studies Awareness Requirements:
• Cultural Diversity in the U.S. (C)
• Global Awareness (G)
• Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2019 - 2020 academic year.