2019 - 2020 Major Map
Molecular Biosciences and Biotechnology, BS

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

### Term 1 0 - 15 Credit Hours

<table>
<thead>
<tr>
<th>Course</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 1 (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 101 or ENG 102: First-Year Composition OR</td>
<td></td>
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</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 107 or ENG 108: First-Year Composition</td>
<td></td>
<td></td>
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</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

- SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses
- Mathematics Placement Assessment score determines placement in mathematics and science courses
- LIA 101, ASU 101, or college-specific First-Year Seminar required of all freshman students.
- 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 Communities and play me3@ASU.

### Term 2 15 - 32 Credit Hours

<table>
<thead>
<tr>
<th>Course</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</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 105: Advanced First-Year Composition OR</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>ENG 107 or ENG 108: First-Year Composition</td>
<td></td>
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</tr>
<tr>
<td>MAT 251: Calculus for Life Sciences (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</td>
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</tbody>
</table>

Term hours subtotal: 17

- Join a student organization
- Activate your Handshake account and build out your profile.
- Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Attend a Pre-Health 101 Session
- 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 - 46 Credit Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBB 347: Molecular Genetics: From Genes to Proteins</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CHM 231: Elementary Organic Chemistry (SQ) AND CHM 235: Elementary Organic Chemistry Laboratory (SQ)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>CLAS Science and Society Elective</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 First-Year Composition requirement.</td>
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<td></td>
<td></td>
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<tr>
<td>Complete Mathematics (MA) requirement.</td>
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</tbody>
</table>

Term hours subtotal: 14

- Pre-health students should take CHM 233 and CHM 237 instead of CHM 231 and CHM 235 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 extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Attend a Study Abroad 101 Session
- Explore Minors or Certificates
### Term 4 46 - 60 Credit Hours

**Critical course signified by 🌟**: MBB 343: Genetic Engineering and Society (L)
- Hours: 4
- Minimum Grade: C

**Critical course signified by 🌟**: MIC 220: Biology of Microorganisms AND MIC 206: Microbiology Laboratory (SG)
- Hours: 4
- Minimum Grade: C

- Humanities, Arts and Design (HU) AND Historical Awareness (H)
  - Hours: 3
- Elective
  - Hours: 3

Term hours subtotal: 14

**Notes**
- Pre-health students should take CHM 234 and CHM 238 instead of an elective this term. See the 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 extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Meet with the Career & Professional Development Center to learn how to develop professional skills.

### Term 5 60 - 76 Credit Hours

**Necessary course signified by 🌟**: MBB 484: Internship OR MBB 495: Undergraduate Research
- Hours: 3
- Minimum Grade: C

- PHY 101: Introduction to Physics (SQ)
  - Hours: 4
- Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)
  - Hours: 3

- Social-Behavioral Sciences (SB)
  - Hours: 3
- Elective
  - Hours: 3

Term hours subtotal: 16

**Notes**
- Pre-health students should take PHY 111 and PHY 113 instead of PHY 101. See pre-health website for more information.
- MBB 484 or MBB 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.
- Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; 4+1 Masters Programs; study abroad).
- Thinking about graduate school? Consider registering for a grad school test prep course.
- Apply for full-time career opportunities.

### Term 6 76 - 90 Credit Hours

**Necessary course signified by 🌟**: MBB 484: Internship OR MBB 495: Undergraduate Research
- Hours: 3
- Minimum Grade: C

- BCH 361: Advanced Principles of Biochemistry AND BCH 367: Elementary Biochemistry Laboratory
  - Hours: 4

- Upper Division CLAS Science and Society Elective
  - Hours: 3

**Complete 2 courses**:
- Elective
  - Hours: 4

**Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).**

Term hours subtotal: 14

**Notes**
- Pre-health students should take PHY 112 and PHY 114 instead of an elective this term. See pre-health website for more information.
- MBB 484 or 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.
- Use Handshake to research employment opportunities.
- Explore graduate school or full-time opportunities.

### Term 7 90 - 105 Credit Hours

**Necessary course signified by 🌟**: MBB 490: Capstone: Issues in Biotechnology (L)
- Hours: 2
- Minimum Grade: C

**Notes**
- Use Handshake to research employment opportunities.
- Explore graduate school or full-time opportunities.
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. 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.

<table>
<thead>
<tr>
<th>Term 8 105 - 120 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBB 491: Capstone: Issues in Molecular Biosciences (L)</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>Upper Division Major Electives</td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>Upper Division Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Complete 2 courses:</td>
<td></td>
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<tr>
<td>Elective</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15

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

• Continue to apply for full-time career opportunities or graduate school

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.

<table>
<thead>
<tr>
<th>Total Hours: 120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Division Hours: 45 minimum</td>
</tr>
<tr>
<td>Major GPA: 2.00 minimum</td>
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<tr>
<td>Cumulative GPA: 2.00 minimum</td>
</tr>
<tr>
<td>Total hrs at ASU: 30 minimum</td>
</tr>
<tr>
<td>Hrs Resident Credit for Academic Recognition: 56 minimum</td>
</tr>
<tr>
<td>Total Community College Hrs: 64 maximum</td>
</tr>
<tr>
<td>Total College Residency Hrs: 12 minimum</td>
</tr>
</tbody>
</table>

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.