## 2019 - 2020 Major Map

### Microbiology (Medical Microbiology), BS

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

### Term 1 0 - 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>C</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>
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</tbody>
</table>

**Term hours subtotal:** 15

### 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>
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<tr>
<td>Social-Behavioral Sciences (SB) AND Global Awareness (G)</td>
<td>3</td>
<td></td>
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</tbody>
</table>

**Complete ENG 101 OR ENG 105 OR ENG 107 course(s).**

**Term hours subtotal:** 17

### Term 3 32 - 47 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 OR 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>Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
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</tbody>
</table>

**Complete 2 courses: Elective**

**Complete First-Year Composition requirement.**

**Complete Mathematics (MA) requirement.**

**Term hours subtotal:** 15
### Term 4 47 - 63 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>MIC 220: Biology of Microorganisms AND MIC 206: Microbiology Laboratory (SG)</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>Humanities, Arts and Design (HU) AND Historical Awareness (H)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literacy and Critical Inquiry (L)</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
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</table>

**Term hours subtotal:** 16

- Pre-health students should take CHM 234 and CHM 238 this term instead of elective. 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 63 - 78 Credit Hours

<table>
<thead>
<tr>
<th>Necessary course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 353: Cell Biology</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>BCH 361: Advanced Principles of Biochemistry AND BCH 367: Elementary Biochemistry Laboratory</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 101: Introduction to Physics (SQ)</td>
<td>4</td>
<td>C</td>
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</tr>
<tr>
<td>Upper Division Elective</td>
<td>4</td>
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</table>

**Term hours subtotal:** 15

- Pre-health students should take PHY 111 and 113 instead of PHY 101 this term. See the pre-health website for more information.
- MIC 360 or MIC 441 may be taken for the upper division elective in this term to facilitate registration for MIC 481 in term 6.
- Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; 4+1 Masters Programs; study abroad).
- Explore graduate school or full-time opportunities.

### Term 6 78 - 94 Credit Hours

**Complete 2 courses:**
- BIO 312: Bioethics (HU) OR PHI 320: Bioethics (HU)
- Microbes or Biomedicine course
- Upper Division Elective OR BIO 484: Internship OR MIC 484: Internship
- Upper Division Elective
- Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

**Term hours subtotal:** 16-14

- BIO 312 may be used to satisfy an upper division Science and Society credit for the College of Liberal Arts and Sciences.
- Pre-health students should take PHY 112 and 114 this term. See the pre-health website for more information.
- Courses from the Microbes and Biomedicine groups must include at least one course from each category and at least one (1) lab course.
- Use Handshake to research employment opportunities.
- Explore graduate school or full-time opportunities.

### Term 7 94 - 108 Credit Hours

<table>
<thead>
<tr>
<th>Necessary course signified by 🌟</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC 420: Immunology: Molecular and Cellular Foundations OR BIO 420: Immunology: Molecular and Cellular Foundations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Microbes or Biomedicine course</td>
<td>2-4</td>
<td>C</td>
<td></td>
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</tbody>
</table>

**Courses from the Microbes and Biomedicine groups must include one (1) lab course**
Upper Division CLAS Science and Society Elective 3
Upper Division Literacy and Critical Inquiry (L) 3
Upper Division Elective 3

Term hours subtotal: 14-16

Term 8 108 - 120 Credit Hours Necessary course signified by ★ Hours Minimum Grade Notes
★ MIC 401: Research Paper (L) 1 C

Complete 2 courses:
Upper Division Elective 5

Complete 2 courses:
Elective 6

Term hours subtotal: 12

• Thinking about graduate school? Consider registering for a grad school test prep course.
• Use Handshake to research employment opportunities.
• Meet with your advisor to verify remaining degree requirements have been met prior to Term 8.

• 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/advising-and-academic-services/science-and-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.
• Continue to apply for full-time career opportunities or graduate school.

Hide Course List(s)/Track Group(s)

Biomedicine

ASB 462: Medical Anthropology: Culture and Health (SB & C)
BIO 343: Genetic Engineering and Society (L) or MBB 343: Genetic Engineering and Society (L)
BIO 345: Organic Evolution
BIO 351: Developmental Biology
BIO 451: Cell Biotechnology: Cell Culture, Immunocytochemistry and Bioimaging
MIC 445: Techniques in Molecular Biology/Genetics or MBB 445: Techniques in Molecular Biology/Genetics
MIC 446: Techniques in Molecular Biology/Genetics Lab or MBB 446: Techniques in Molecular Biology/Genetics Lab

Microbes

BIO 495: Undergraduate Research or MBB 495: Undergraduate Research or MIC 495: Undergraduate Research
MIC 302: Advanced Bacteriology Laboratory (L)
MIC 360: Bacterial Physiology
MIC 379: Medical Bacteriology
MIC 425: Advanced Immunology
MIC 441: Bacterial Genetics
MIC 442: Bacterial Genetics Laboratory
MIC 485: General Virology
MIC 494: Emerging Infectious Diseases
MIC 498: HIV/AIDS Prevention Education in Africa
MIC 492: Honors Directed Study or BIO 492: Honors Directed Study or MBB 492: Honors Directed Study

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.

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.

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 minimum
Total hrs at ASU: 30 minimum
Hrs Resident Credit for Academic Recognition: 56 minimum
Total Community College Hrs: 64 maximum
Total College Residency Hrs: 12 minimum

General University Requirements Legend
General Studies Core Requirements:
- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)