# 2019 - 2020 Major Map

## Biotechnology and Bioenterprise, BS

**School/College:** New College of Interdisciplinary Arts and Sciences  
**Location:** West campus  
**ASBITEBS**

### Term 1 - 15 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIO 181: General Biology I (SQ)</strong></td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>MAT 210: Brief Calculus (MA) or MAT 251: Calculus for Life Sciences (MA) OR MAT 270: Calculus with Analytic Geometry I (MA)</td>
<td>3-4</td>
<td>C</td>
</tr>
<tr>
<td>CHM 113: General Chemistry I (SQ)</td>
<td>4</td>
<td>C</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>
</tr>
<tr>
<td>NEW 101: The ASU New College Experience</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Term hours subtotal: 15-16

- An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses.
- Mathematics Placement Assessment score determines placement in mathematics course.
- Focus Area determines MAT course: Biostatistics Focus Area complete MAT 270; Biotechnology or BioentrepreneurshipFocus Area complete MAT 210.
- ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students. NEW 101 satisfies this requirement.
- IAS 300 (3 credit hours) is required for all transfer students in place of NEW 101.
- General Electives credit hours will be adjusted depending on focus area chosen. Discuss with your advisor.
- Select your Career Interest Communities and play [me3@ASU](mailto:me3@ASU).
- Activate your Handshake account and build out your profile.

### Term 2 - 15 - 29 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIO 182: General Biology II (SG)</strong></td>
<td>4</td>
<td>C</td>
</tr>
<tr>
<td>STP 226: Elements of Statistics (CS) OR MAT 271: Calculus with Analytic Geometry II (MA)</td>
<td>3-4</td>
<td>C</td>
</tr>
<tr>
<td>CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td>C</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>
</tr>
</tbody>
</table>

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

Term hours subtotal: 14-15

- Focus Area determines STP/MAT course: Biostatistics Focus Area complete MAT 271; Biotechnology or BioentrepreneurshipFocus Area complete STP 226.
- Create a first draft resume.
- Join a student club or professional organization.
- Secure a part-time job or volunteer experience.

### Term 3 - 29 - 43 Credit Hours

<table>
<thead>
<tr>
<th>Critical course signified by</th>
<th>Hours</th>
<th>Minimum Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHM 233: General Organic Chemistry I AND CHM 237: General Organic Chemistry Laboratory I</strong></td>
<td>4</td>
<td>C</td>
</tr>
</tbody>
</table>

- [Page 1](#)
LSC 347: Fundamentals of Genetics AND LSC 348: Fundamentals of Genetics Laboratory 4 C

Humanities, Arts and Design (HU) AND Historical Awareness (H) 3

TMC 110: Understanding the Enterprise OR Elective 3 C

Complete CHM 113 AND CHM 116 course(s).

Complete Mathematics (MA) requirement.

Complete First-Year Composition requirement.

Term hours subtotal: 14

Term 4 43 - 61 Credit Hours Critical course signified by ★ Hours Minimum Grade

★ CHM 234: General Organic Chemistry II AND CHM 238: General Organic Chemistry Laboratory II 4 C

Focus Area Course 4-3 C

★ PHY 101: Introduction to Physics (SQ) 4 C

★ TEM 230: Creativity and Business Innovation 3 C

Cultural Diversity in the U.S. (C) 3

Term hours subtotal: 18-17

Term 5 61 - 74 Credit Hours Necessary course signified by ✭ Hours Minimum Grade

✭ BIO 353: Cell Biology AND BIO 354: Cell Biology Laboratory 4 C

Upper Division Literacy and Critical Inquiry (L) OR IAS 300: Career Strategies and Personal Resilience (L or SB) 3

Social-Behavioral Sciences (SB) 3

Upper Division Elective 3

Term hours subtotal: 13

Term 6 74 - 90 Credit Hours Necessary course signified by ✫ Hours Minimum Grade

✫ Focus Area Course 4-3 C

Literacy and Critical Inquiry (L) 3

 Humanities, Arts and Design (HU) 3

Social-Behavioral Sciences (SB) AND Global Awareness (G) 3

Upper Division Elective 3

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

Term hours subtotal: 16-15

Term 7 90 - 105 Credit Hours Necessary course signified by ✩ Hours Minimum Grade

✩ MIC 443: The Microbial Universe AND MIC 444: The Microbial Universe Laboratory 4 C

Focus Area Course 2-0 C

Upper Division Elective 3

Upper Division Language and Cultures: Requirement satisfied through the following:

* Completion of six semester hours of upper-division courses that have a Global Awareness (G) or Cultural Diversity (C) designation, in addition to the courses used to meet the University General Studies requirements or four (4) sequential semesters of one foreign language

Term hours subtotal: 105

Term 8 105 - 120 Credit Hours Necessary course signified by ✩ Hours Minimum Grade

✩ Focus Area Course: Biostatistics and Bioentrepreneurship Focus Area have remaining credits hours to take. General Electives credit hours will be adjusted. Discuss with your academic advisor.

* Gather professional references.

• Bioentrepreneurship Focus Area complete TMC 110; other Focus Areas may complete a general elective.

• Develop your research skills.

• Develop your professional skills.

• Build your professional connections - join the ASU Mentor Network.

• Explore an internship, an IGLE international experience, or ASU Study Abroad.

• Thinking about graduate school? Consider registering for a grad school test prep course.

• Develop your professional online presence.

• General Electives credit hours will be adjusted depending on chosen Focus Area. Discuss with your academic advisor.

• IAS 300 (3 credit hours) is required for all transfer students.

• Use Handshake to research employment opportunities.

• Complete an in person interview or virtual practice interview.
or two (2) semesters of a current computer language. Adjustment to upper division hours is required if lower division courses are used.

Upper Division Elective

3
Term hours subtotal: 15-13

<table>
<thead>
<tr>
<th>Term 8 105 - 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>LSC 484: Internship</td>
<td></td>
<td>3</td>
<td>C</td>
<td>• Apply for full-time career opportunities.</td>
</tr>
</tbody>
</table>

Upper Division Language and Cultures: Requirement satisfied through the following:
* Completion of six semester hours of upper-division courses that have a Global Awareness (G) or Cultural Diversity (C) designation, in addition to the courses used to meet the University General Studies requirements or four (4) sequential semesters of one foreign language or two (2) semesters of a current computer language. Adjustment to upper division hours is required if lower division courses are used.

3

Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)

3

Complete 2 courses:

Upper Division Elective

6

Term hours subtotal: 15

- Students select one Focus Area and complete all courses listed for that Focus Area. General Electives credits hour will be adjusted depending on chosen Focus Area. Please consult your advisor.

Bioentrepreneurship Focus Area

- TMC 310: Promotion of the Enterprise
- TMC 320: Funding the Enterprise
- TMC 330: Leading the Enterprise

Biostatistics Focus Area

- STP 280: Probability and Statistics for Researchers (CS)
- STP 281: Statistical Analysis for Researchers
- STP 310: Design and Analysis of Experiments

Biotechnology Focus Area

- BCH 371: Modern Concepts in Biochemistry
- BCH 372: Modern Concepts in Biochemistry Laboratory
- BIO 443: Applied Molecular Genetics and Genomics
- LSC 447: Molecular Genetics Laboratory

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)

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.