# 2018 - 2019 Major Map

## Applied Mathematics for Life and Social Sciences, BS

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

### Term 1 - 15 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AML 100: Introduction to Applied Mathematics for the Life and Social Sciences (MA)</td>
<td>3</td>
<td>C</td>
<td>- An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses</td>
</tr>
</tbody>
</table>
| BIO 181: General Biology I (SQ)                                                    | 4     | C             | • Mathematics Placement Assessment score determines placement in mathematics course and eligibility for AML 100  
| ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition | 3     | C             | • ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students.  
| LIA 101: Student Success in the College of Liberal Arts and Sciences              | 1     |               | • Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation.  
| MAT 270: Calculus with Analytic Geometry I (MA)                                  | 4     | C             | • Select your career interest area and play me3@ASU.  
| Minimum 2.00 GPA in STP and MAT.                                                  |       |               | • Create a first draft resume.  

Term hours subtotal: 15

### Term 2 - 15 - 32 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| CSE 100: Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming with Java (CS) | 3     | C             | • Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation.  
| MAT 271: Calculus with Analytic Geometry II (MA)                                  | 4     | C             | • Use the SB course in this term as a prerequisite for upper division work in the Social Science track. Recommended courses are found in track list below.  
| BIO 182: General Biology II (SG)                                                   | 4     | C             | • Network in your career interest area.  
| ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition | 3     | C             | • Join a student club or professional organization.  
| Social-Behavioral Sciences (SB)                                                   | 3     |               |                                                                              |
| Complete ENG 101 OR ENG 105 OR ENG 107 course(s).                                 |       |               |                                                                              |
| Minimum 2.00 GPA in STP and MAT.                                                  |       |               |                                                                              |

Term hours subtotal: 17

### Term 3 - 32 - 48 Credit Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| MAT 272: Calculus with Analytic Geometry III (MA)                                 | 4     | C             | • Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation.  
| CLAS Science and Society Elective                                                 | 3     | C             | • Secure a part-time job or volunteer experience.  
| Global Awareness (G)                                                              | 3     |               | • Develop your skills.  
| Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)          | 3     |               |                                                                              |
| Literacy and Critical Inquiry (L)                                                 | 3     |               |                                                                              |
| Complete First-Year Composition requirement.                                       |       |               |                                                                              |
| Complete Mathematics (MA) requirement.                                            |       |               |                                                                              |
| Minimum 2.00 GPA in STP and MAT.                                                  |       |               |                                                                              |

Term hours subtotal: 16
### Term 4 - 48 - 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>AML 253: Introduction to Mathematical Tools and Modeling for the Life and Social Sciences</td>
<td>3</td>
<td>C</td>
<td>Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation. Use the SB course in this term to complete a prerequisite for upper division work in the Social Science track. Recommended courses are found in the track list below. Explore an internship.</td>
</tr>
<tr>
<td>MAT 274: Elementary Differential Equations (MA) OR MAT 275: Modern Differential Equations (MA)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>STP 326: Intermediate Probability (CS) OR STP 421: Probability</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Minimum 2.00 GPA in STP and MAT.

Term hours subtotal: 15

### 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>Upper Division Life Science course</td>
<td>3</td>
<td>C</td>
<td>Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation. Develop your professional online presence.</td>
</tr>
<tr>
<td>Upper Division Social Science course</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>STP 420: Introductory Applied Statistics (CS)</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>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Minimum 2.00 GPA in STP and MAT.

Term hours subtotal: 15

### Term 6 - 78 - 93 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>MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra</td>
<td>3</td>
<td>C</td>
<td>Research employment opportunities. Complete an in person or virtual practice interview.</td>
</tr>
<tr>
<td>Upper Division Applied Mathematics</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Life Science course</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Elective OR ASB 484: Internship</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Minimum 2.00 GPA in STP and MAT.

Term hours subtotal: 15

### Term 7 - 93 - 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>Upper Division Applied Mathematics</td>
<td>3</td>
<td>C</td>
<td>Gather professional references. Apply for full-time career opportunities.</td>
</tr>
<tr>
<td>Upper Division Social Science course</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division CLAS Science and Society Elective</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Literacy and Critical Inquiry (L)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Minimum 2.00 GPA in STP and MAT.

Term hours subtotal: 15

### Term 8 - 108 - 120 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>AML 406: Directed Reading and Research in Applied Mathematics for the Life and Social Sciences</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

Minimum 2.00 GPA in STP and MAT.
Recommended SB courses

ASB 102: Introduction to Cultural Anthropology (SB & G)
CDE 232: Human Development (SB)
JUS 105: Introduction to Justice Studies (SB)
POS 110: American Government and Politics (SB)
PSY 101: Introduction to Psychology (SB)
SOC 101: Introductory Sociology (SB)

Upper Division Life Science

BIO 320: Fundamentals of Ecology
BIO 321: Introductory Ecology Laboratory
BIO 406: Computer Applications in Biology
BIO 410: Techniques in Conservation Biology and Ecology (L)
BIO 411: Quantitative Methods in Conservation and Ecology
BIO 415: Biometry (CS)
BIO 417: Experimental Design
BIO 423: Population and Community Ecology
BIO 424: Dynamic Modeling in Social and Ecological Systems
BIO 455: Introduction to Comparative Genomics

Upper Division Social Science

ASB 430: Social Simulation (CS)
ASM 345: Disease and Human Evolution
ASM 465: Quantification and Analysis for Anthropologists (CS)
GCU 496: Geographic Research Methods (L)
GIS 341: Introduction to Cartography and Georepresentation (CS)
GIS 470: Statistics for Geographers (CS)
GIS 471: Spatial Statistics for Geography and Planning
JUS 301: Research in Justice Studies (SB)
JUS 302: Statistical Analysis for Justice Studies (CS)
POS 301: Empirical Political Inquiry (SB)
POS 401: Political Statistics (CS)
POS 485: Political Economy (SB)
SOC 331: Environmental Sociology (SB & G)
SOC 390: Social Statistics I (CS)
SOC 391: Research Methods (L or SB)
SOC 443: Sociology of Corporations (SB & G)
SOC 448: Epidemics and Society (SB & G)

Upper Division Applied Mathematics

AML 441: Mathematical Concepts and Tools in Sustainability
MAT 300: Mathematical Structures (L)

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.
MAT 343: Applied Linear Algebra

MAT 351: Mathematical Methods for Genetic Analysis (CS)

MAT 355: Introduction to Computational Molecular Biology (CS)

MAT 362: Advanced Mathematics for Engineers and Scientists

MAT 371: Advanced Calculus I

MAT 451: Mathematical Modeling (CS)

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 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)

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 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 2018 - 2019 academic year.