**2019 - 2020 Major Map**  
Environmental Science, BS  

School/College: New College of Interdisciplinary Arts and Sciences  
Location: West campus, ASU@Lake Havasu  
ASENVBS

<table>
<thead>
<tr>
<th>Term 1 0 - 15 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 181: General Biology 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>
</tbody>
</table>
| MAT 170: Precalculus (MA) OR MAT 210: Brief Calculus (MA) or MAT 251: Calculus for Life Sciences (MA) OR MAT 270: Calculus with Analytic Geometry I (MA) | 3-4 | C | • An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses.  
• Mathematics Placement Assessment score determines placement in mathematics course.  
• ASU 101 or college-specific equivalent First-Year Seminar is required of all freshman students. NEW 101 satisfies this requirement. IAS 300 (3 credit hours) is required for transfer students in place of NEW 101.  
• MAT 210, MAT 251 or MAT 270 is recommended for students intending to pursue graduate degrees.  
• MAT 270 is necessary for students intending on taking the Data/Modeling track focus courses.  
• Select your Career Interest Communities and play me3ASU.  
• Activate your Handshake account and build out your profile. |
| NEW 101: The ASU New College Experience | 1 | | |
| Term hours subtotal: | 15-16 | | |

<table>
<thead>
<tr>
<th>Term 2 15 - 29 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| BIO 182: General Biology II (SG) | 4 | C | • Either STP 226 or STP 280 is acceptable to meet the requirement. STP 280 is necessary for students intending to take the Data/Modeling track focus courses.  
• Create a first draft resume.  
• Join a student club or professional organization.  
• Secure a part-time job or volunteer experience. |
| CHM 116: General Chemistry II (SQ) | 4 | C | |
| 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 | |
| STP 226: Elements of Statistics (CS) OR STP 280: Probability and Statistics for Researchers (CS) | 3 | C |  
| Complete ENG 101 OR ENG 105 OR ENG 107 course(s). | | | |
| Term hours subtotal: | 14 | | |

<table>
<thead>
<tr>
<th>Term 3 29 - 43 Credit Hours</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| PHY 101: Introduction to Physics (SQ) OR GLG 108: Water Planet (SQ) or GLG 101: Introduction to Geology I (Physical) (SQ) AND ENV 103: Field and Lab Geology for Environmental Science | 4 | C | • PHY 101 is required. Student may choose either GLG 108 or GLG 101+ENV 103.  
• One semester of organic chemistry lecture+lab is required, either CHM 231+235 or CHM 233+237. CHM 233+237 |
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Organic Chemistry I AND CHM 237: General Organic Chemistry Laboratory I</td>
<td>4</td>
<td>C</td>
<td>Should be taken by students intending to take electives from the Chemistry/Toxicology track focus area, as they are prerequisites required for many courses in that track focus area. * Develop your research skills. * Develop your professional skills. * Build your professional connections - join the ASU Mentor Network.</td>
</tr>
<tr>
<td>ENV 201: Fundamentals of Environmental Science</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete First-Year Composition requirement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Mathematics (MA) requirement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>14</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

**Term 4 43 - 57 Credit Hours** Critical course signified by !

<table>
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<tr>
<th>Course</th>
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<th>Minimum Grade</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PHY 101: Introduction to Physics (SQ) OR GLG 108: Water Planet</td>
<td>4</td>
<td>C</td>
<td>• PHY 101 is required. Student may choose either GLG 108 or GLG 101+ENV 103.</td>
</tr>
</tbody>
</table>
| (SQ) or GLG 101: Introduction to Geology I (Physical) (SQ) AND ENV 103: Field and Lab Geology for Environmental Science |       |               | • The program electives are grouped by track focus areas. Students can take electives from any of the track focus areas. Some students may choose to specialize in a particular area, and therefore take all of their electives from within one group. Other students may choose a broad approach and take electives from each group.  
• Students must complete a total of at least 11 hours of track focus elective courses and at least 3 hours of upper division track focus elective courses.  
• Explore an internship, an IGLE international experience, or ASU Study Abroad. |
| SOS 111: Sustainable Cities (HU or SB) & G                           | 3     | C             |                                                                                           |
| Social-Behavioral Sciences (SB) AND Historical Awareness (H)          | 3     |               |                                                                                           |
| Track Focus Elective Course                                          | 4     | C             |                                                                                           |
| **Term hours subtotal:**                                              | **14**|               |                                                                                           |

**Term 5 57 - 72 Credit Hours** Necessary course signified by ★

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Minimum Grade</th>
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<tbody>
<tr>
<td>★ CHM 302: Environmental Chemistry</td>
<td>3</td>
<td>C</td>
<td>• IAS 300 (3 credit hours) is required for all transfer students.</td>
</tr>
</tbody>
</table>
| ★ LSC 347: Fundamentals of Genetics                                  | 3     | C             | • IAS/PHI 407 and IAS/PHI 409 recommended to fulfill the upper division ethics/humanities elective and upper division HU.  
• Thinking about graduate school? Consider registering for a grad school test prep course.  
• Develop your professional online presence.                        |
| Literacy and Critical Inquiry (L) OR IAS 300: Career Strategies and Personal Resilience (L or SB) | 3     |               |                                                                                           |
| Upper Division Humanities, Arts and Design (HU) AND Upper Division Ethics/Humanities Elective | 3     | C             |                                                                                           |
| 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     | C             |                                                                                           |
| **Term hours subtotal:**                                              | **15**|               |                                                                                           |

**Term 6 72 - 87 Credit Hours** Necessary course signified by ★

<table>
<thead>
<tr>
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<th>Minimum Grade</th>
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</tr>
</thead>
<tbody>
<tr>
<td>★ BIO 320: Fundamentals of Ecology AND LSC 322: Fundamentals of Ecology Laboratory</td>
<td>4</td>
<td>C</td>
<td>• The electives listed at the bottom are grouped by focus areas. Students can take electives from any of the focus areas. Some students may choose to specialize in a particular area, and therefore take all of their electives from</td>
</tr>
<tr>
<td>★ ENV 345: Spatial Analysis in the Environmental Sciences</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>
Within one group. Other students may choose a broad approach and take electives from each group.

- PLB course taken to fulfill the PLB elective requirement cannot be used to also fulfill a track focus elective requirement.
- Use Handshake to research employment opportunities.
- Complete an in person or virtual practice interview.

The electives listed at the bottom are grouped by focus areas. Students can take electives from any of the focus areas. Some students may choose to specialize in a particular area, and therefore take all of their electives from within one group. Other students may choose a broad approach and take electives from each group.

Gather professional references.

Apply for full-time career opportunities.

- Students can take electives from any of the focus areas. Some students may choose to specialize in a particular area, and therefore take all of their electives from within one group. Other students may choose a broad approach and take electives from each group.
OGL 200: Introduction to Organizational Leadership (SB)

OGL 240: Introduction to Project Management

OGL 300: Theory and Practice of Leadership

OGL 355: Leading Organizational Innovation and Change

SOS 230: Professional Skills in Sustainability

SOS 311: Future Thinking and Strategies

SOS 385: Business and Sustainability I

BIO 353: Cell Biology

BIO 443: Applied Molecular Genetics and Genomics

CHM 234: General Organic Chemistry II AND CHM 238: General Organic Chemistry Laboratory II

CHM 303: Environmental Chemistry Laboratory (L)

LSC 425: Analytical Chemistry for Life Sciences

LSC 426: Analytical Chemistry for Life Sciences Lab

LSC 475: Principles of Toxicology

BIO 323: Ecosystem Restoration and Management

BIO 412: Conservation in Practice

BIO 415: Biometry (CS)

BIO 421: Landscape Ecology

BIO 426: Limnology (L)

ENV 388: Research Fundamentals for the Natural Sciences (L) or LSC 388: Research Fundamentals for the Natural Sciences (L) or PLB 388: Research Fundamentals for the Natural Sciences (L)

LSC 362: The Human Environment

MIC 443: The Microbial Universe AND MIC 444: The Microbial Universe Laboratory

MAT 275: Modern Differential Equations (MA)

MAT 343: Applied Linear Algebra

MAT 450: Mathematical Models in Biology or MAT 451: Mathematical Modeling (CS)

STP 281: Statistical Analysis for Researchers

STP 310: Design and Analysis of Experiments

STP 311: Regression and Time Series Analyses

STP 315: Statistical Computing

STP 450: Nonparametric Statistics

STP 460: Categorical Data Analysis

STP 499: Individualized Instruction

Ecosystem/Global Change Track

BIO 323: Ecosystem Restoration and Management

BIO 412: Conservation in Practice

BIO 415: Biometry (CS)

BIO 421: Landscape Ecology

BIO 426: Limnology (L)

ENV 388: Research Fundamentals for the Natural Sciences (L) or LSC 388: Research Fundamentals for the Natural Sciences (L) or PLB 388: Research Fundamentals for the Natural Sciences (L)

LSC 362: The Human Environment

MIC 443: The Microbial Universe AND MIC 444: The Microbial Universe Laboratory

Organismal/Conservation Biology Track

BIO 331: Animal Behavior

BIO 360: Animal Physiology

BIO 370: Vertebrate Zoology

BIO 385: Comparative Invertebrate Zoology

BIO 410: Techniques in Conservation Biology and Ecology (L)

BIO 474: Herpetology

ENV 300: Plant Diversity and Evolution (L or SG) or PLB 300: Plant Diversity and Evolution (L or SG)

ENV 302: Plants and Civilization (L) or PLB 302: Plants and Civilization (L)

PLB 308: Plant Physiology

PLB 310: The Flora of Arizona

PLB 394: Special Topics

PLB 494: Special Topics

Capstone Experience

BIO 495: Undergraduate Research

BIO 499: Individualized Instruction

ENV 484: Internship

ENV 492: Honors Directed Study

ENV 493: Honors Thesis

ENV 499: Individualized Instruction

LSC 484: Internship

Upper Division Ethics/Humanities Electives

IAS 340: Bioethics (HU) or PHI 320: Bioethics (HU)

IAS 406: Moral Dilemmas (L or HU) or PHI 406: Moral Dilemmas (L or HU)

IAS 407: Environmental Philosophy and Policy (L or HU) or PHI 407: Environmental Philosophy and Policy (L or HU)

IAS 409: Eco-Community Ethics (HU) or PHI 409: Eco-Community Ethics (HU)

PHI 306: Applied Ethics (HU)

PHI 360: Business and Professional Ethics (HU)
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.