# 2019 - 2020 Major Map
## Chemistry (Environmental Chemistry), BS
### School/College: The College of Liberal Arts and Sciences
### Location: Tempe campus
### LACHMEBS

### Term 1 - 15 Credit Hours Critical course signified by 🟠
<table>
<thead>
<tr>
<th>Course / Code</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
</table>
| CHM 117: General Chemistry for Majors I (SQ) AND CHM 111: General Chemistry Laboratory for Majors I (SQ) OR CHM 113: General Chemistry I (SQ) | 4 | C | - 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 required of all freshman students.  
- Select your Career Interest Areas and play me3@ASU |
| MAT 270: Calculus with Analytic Geometry I (MA) | 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 | |
| LIA 101: Student Success in the College of Liberal Arts and Sciences | 1 | | |
| Social-Behavioral Sciences (SB) AND Global Awareness (G) | 3 | | |
| **Term hours subtotal:** | **15** | | |

### Term 2 - 15 - 30 Credit Hours Critical course signified by 🟠
<table>
<thead>
<tr>
<th>Course / Code</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 118: General Chemistry for Majors II (SQ) AND CHM 112: General Chemistry Laboratory for Majors II (SQ) OR CHM 116: General Chemistry II (SQ)</td>
<td>4</td>
<td>C</td>
<td>- Connect with a Career Advisor by registering for a Handshake account.</td>
</tr>
<tr>
<td>MAT 271: Calculus with Analytic Geometry II (MA)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 121: University Physics I: Mechanics (SQ)</td>
<td>3</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>PHY 122: University Physics Laboratory I (SQ)</td>
<td>1</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td><strong>Complete ENG 101 OR ENG 105 OR ENG 107 course(s).</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>15</strong></td>
<td></td>
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</tbody>
</table>

### Term 3 - 30 - 45 Credit Hours Critical course signified by 🟠
<table>
<thead>
<tr>
<th>Course / Code</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 233: General Organic Chemistry I</td>
<td>3</td>
<td>C</td>
<td>- Build your professional connections - join the ASU Mentor Network</td>
</tr>
<tr>
<td>CHM 237: General Organic Chemistry Laboratory I</td>
<td>1</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 131: University Physics II: Electricity and Magnetism (SQ)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MAT 272: Calculus with Analytic Geometry III (MA)</td>
<td>4</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>PHY 132: University Physics Laboratory II (SQ)</td>
<td>1</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>
</tr>
<tr>
<td><strong>Complete First-Year Composition requirement.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Complete Mathematics (MA) requirement.</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>15</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

### Term 4 - 45 - 60 Credit Hours Critical course signified by 🟠
<table>
<thead>
<tr>
<th>Course / Code</th>
<th>Hours</th>
<th>Minimum Grade</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 240: Mathematical Methods in Chemistry (CS)</td>
<td>3</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td><strong>Term hours subtotal:</strong></td>
<td><strong>15</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
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Page 1
CHM 234: General Organic Chemistry II 3 C
CHM 238: General Organic Chemistry Laboratory II 1 C
Literacy and Critical Inquiry (L) 3
Complete 2 courses:
Elective 5

Term hours subtotal: 15

Term 5 60 - 76 Credit Hours Necessary course signified by ★  Hours Minimum Grade Notes

★ CHM 302: Environmental Chemistry 3 C
★ CHM 345: Physical Chemistry I 3 C
★ CHM 348: Physical Chemistry Laboratory I (L) 1 C
CLAS Science and Society Elective 3 C
Humanities, Arts and Design (HU) 3
Elective 3

Term hours subtotal: 16

Term 6 76 - 90 Credit Hours Necessary course signified by ★

★ GLG 321: Mineralogy 3 C
★ CHM 303: Environmental Chemistry Laboratory (L) 2 C
Social-Behavioral Sciences (SB) AND Historical Awareness (H) 3
Upper Division Elective 3
Elective 3
Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

Term hours subtotal: 14

Term 7 90 - 106 Credit Hours Necessary course signified by ★

★ CHM 325: Analytical Chemistry 3 C
★ CHM 326: Advanced Analytical Chemistry Laboratory 1 C
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB) 3
Upper Division Elective OR CHM 484: Internship 3
Complete 2 courses:
Upper Division Elective 6

Term hours subtotal: 16

Term 8 106 - 120 Credit Hours Necessary course signified by ★

★ CHM 481: Geochemistry 3 C
BCH 361: Advanced Principles of Biochemistry 3 C
BCH 367: Elementary Biochemistry Laboratory 1 C
Upper Division CLAS Science and Society Elective 3 C
Upper Division Elective 4

Term hours subtotal: 14

• Transferring students shall take the equivalents of MAT 274 or MAT 275 (Differential Equations) and MAT 242 (Linear Algebra) in place of the 5 units of "elective". These two courses will allow the student to meet Term 4 critical tracking and the enrollment requirements for CHM 345 in Term 5. Discuss substitutions with major advisor.

• CHM 302, 345, and 348 are only offered in the Fall semester.

• Create a first draft resume.

• CHM 303 and GLG 321 are only offered in the Spring semester.

• Explore internship opportunities.

• CHM 325 and 326 are only offered in the Fall semester.

• Apply for full-time career opportunities.

• CHM 481 is only offered in the Spring semester.
• 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.

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 2019 - 2020 academic year.