CHEMISTRY, MAJOR - TEACHING

Teaching (Code 100-204)

University Requirements

GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE

Credit Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum total for graduation</td>
<td>120</td>
</tr>
<tr>
<td>Upper division credits (courses numbered 300 and higher)</td>
<td>39</td>
</tr>
<tr>
<td>Liberal Education Core</td>
<td>36</td>
</tr>
</tbody>
</table>

Academic Concentrations

Grade Point Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Resident</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Major</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Minor</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Certificate</td>
<td>2.00 average</td>
</tr>
</tbody>
</table>

University Residency Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum total</td>
<td>30</td>
</tr>
<tr>
<td>Senior year</td>
<td>23</td>
</tr>
<tr>
<td>Major, Standard, upper division in residence</td>
<td>12</td>
</tr>
<tr>
<td>Major, Comprehensive, upper division in residence</td>
<td>21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum Grade Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate</td>
<td>25 percent of credits</td>
</tr>
</tbody>
</table>

Procedures Required for Graduation

- Obtain admission to the degree program and/or the College offering it.
- Apply for graduation on CampS.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Maximum Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain programs</td>
<td>12</td>
</tr>
<tr>
<td>See special requirements in each College.</td>
<td></td>
</tr>
</tbody>
</table>

Applicability of Credits Toward Graduation

Junior College or Two-Year College Credits. A maximum of 72 semester credits earned in a junior college or two-year college will be accepted as degree credits at UW-Eau Claire.

Extension Credits. Credits earned in credit outreach courses offered by UW-Eau Claire are treated as resident credits. Credits earned in extension courses offered by other units of the University of Wisconsin System are treated as transfer credits. All other (non-UW) extension and correspondence credits are normally limited to one-fourth of the total required for graduation from any curriculum.

WTCS Credits. A maximum of 72 semester credits earned in college parallel programs at Madison Area Technical College, Milwaukee Area Technical College, Nicolet Area Technical College, or Chippewa Valley Technical College may be accepted as degree credits at UW-Eau Claire. A set number of general education courses will be accepted from other technical schools. Occupational and technical courses may also be considered for transfer if the quality and content of the course work from the technical college is judged to be comparable to course work at UW-Eau Claire. Refer to the Transfer Credit Wizard (https://my.uwec.edu/psp/PUBLIC/EMPLOYEE/HRMS/c/EAU_SS_CUSTOM.EAU_TRNCRDWZ.GBL) or contact the UW-Eau Claire Admissions Office for information about the current transfer policy.

USAFI Credit. UW-Eau Claire will accept up to 32 semester credits for work done through the United States Armed Forces Institute, under the provision for non-UW correspondence credit (see Extension Credits above).

Activity Credit (band, chorus, drama, KINS 100-184 courses) Students may count toward graduation no more than one credit of KINS 110-184 courses. Students may count toward graduation no more than four credits earned in any single activity course and no more than 12 credits resulting from any combination of activity courses (excluding KINS 110-184 courses).

Other Restricted Credits. For other University restrictions, see the following: Cooperative Education; Credit by Examination; Satisfactory/Unsatisfactory Registration; Transfer of Credits. College or departmental restrictions may also be placed on Independent Study (399-499 courses), Directed Study (395-495), and other types of credits.

APPLICABILITY OF CREDITS TOWARD GRADUATION

**Credit Restrictions**

<table>
<thead>
<tr>
<th>Credit Type</th>
<th>Maximum Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory/Unsatisfactory</td>
<td>maximum 12</td>
</tr>
<tr>
<td>Major, Standard</td>
<td>maximum 1 course</td>
</tr>
<tr>
<td>Major, Comprehensive</td>
<td>maximum 2 courses</td>
</tr>
<tr>
<td>Credit by Examination</td>
<td>maximum ¼ of total</td>
</tr>
<tr>
<td>Major or minor</td>
<td>maximum ½ of total</td>
</tr>
<tr>
<td>Two-Year College Credits</td>
<td>maximum 72 credits</td>
</tr>
<tr>
<td>Activity credit (band, chorus, drama, KINS 100-184)</td>
<td>maximum 1 credit</td>
</tr>
<tr>
<td>Total KINS 100-184</td>
<td>maximum 12 credits</td>
</tr>
<tr>
<td>Total Band, chorus, drama</td>
<td>maximum 4 credits</td>
</tr>
<tr>
<td>Extension credits</td>
<td>no maximum</td>
</tr>
<tr>
<td>Other extension/correspondence</td>
<td>maximum ¼ of total</td>
</tr>
<tr>
<td>USAFI</td>
<td>maximum 32 credits</td>
</tr>
</tbody>
</table>

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

LIBERAL EDUCATION CORE REQUIREMENTS

- a minimum of 36 credits
Knowledge Goal

Knowledge Outcome 1 (K1): Natural Sciences
Two (2) learning experiences
One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences
Two (2) learning experiences
One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 3 (K3): Humanities
Two (2) learning experiences

Knowledge Outcome 4 (K4): Fine Arts
One (1) learning experience

Skills Goal

Skills Outcome 1 (S1): Written and Oral Communication
Two (2) learning experiences
One S1 must meet the University Writing Requirement

Skills Outcome 2 (S2): Mathematics
One (1) learning experience
One S2 to meet the University Mathematics Requirement

Skills Outcome 3 (S3): Creativity
One (1) learning experience

Responsibility Goal

Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity
Two (2) learning experiences
One R1 must satisfy Design for Diversity

Responsibility Outcome 2 (R2): Global Perspectives
One (1) learning experience

Responsibility Outcome 3 (R3): Civic and Environmental Issues
One (1) learning experience

Integration Goal

Integration Outcome 1 (I1): Integration
Two (2) learning experiences

Service-Learning Goal

Service-Learning
30 hours

Collegiate Degree Requirements

University Requirements in Teacher Education in the College of Education and Human Sciences

All candidates for teacher education baccalaureate degrees must also meet the following:

1. Liberal Education requirements in the College of Education and Human Sciences.
2. Grade point requirements:

<table>
<thead>
<tr>
<th>Resident</th>
<th>Total</th>
<th>Major</th>
<th>Minor (for certification only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.75 average</td>
<td>2.75 average</td>
<td>2.75 average</td>
<td>2.75 average</td>
</tr>
</tbody>
</table>

3. Residency requirements:

| Minimum Total | 30 credits |
| Senior Year | 23 credits |
| Major, in upper division courses | 12 credits |
| Comprehensive Major, in upper division courses | 21 credits |

4. Criteria and requirements for Professional Programs and for Admission to the Professional Semester.

5. Specific requirements of programs offered in the College of Education and Human Sciences. (See the departmental sections of this catalog.)

Early Adolescence Through Adolescence and Early Childhood through Adolescence
(formerly Secondary Education and Special Subjects)

Legal Education Requirements are listed in the table below

K2 (Social Sciences)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 260</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>AND another learning experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S3 (Creativity)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 497</td>
<td>Field Experience Seminar (included in major)</td>
<td>2</td>
</tr>
<tr>
<td>AND another learning experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R1 (Equity, Diversity, Inclusivity)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 385</td>
<td>Social Foundations: Human Relations (included in major)</td>
<td>3</td>
</tr>
<tr>
<td>AND another learning experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I1 (Integration)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 497</td>
<td>Field Experience Seminar (included in major)</td>
<td>2</td>
</tr>
<tr>
<td>AND another learning experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teaching Licensure Requirements - EA-A Licensure

Program Options B and C

These program options are organized around content majors and education courses and are designed to prepare teachers for early adolescence through adolescence (EA-A) teaching or for early childhood through adolescence (EC-A) teaching in selected areas. Each program requires the student to complete:

1. a comprehensive major (at least 60 credits) or a standard major (at least 36 credits) plus one of the following: another standard major (at least 36 credits), or a minor (at least 24 credits), or a certificate (12-18 credits).
2. a professional sequence consisting of teaching methods and related courses. Advising is done through the content major department.
Upon admission to program, candidates are assigned an advisor in education as well.

**Option B: EA-A**

Early Adolescence through Adolescence Licensure

Professional Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 212</td>
<td>Initial Teaching Experience in Elementary, Middle, and High School Settings</td>
<td>2</td>
</tr>
<tr>
<td>ES 312</td>
<td>General Methods of Teaching</td>
<td>2</td>
</tr>
<tr>
<td>ES 317</td>
<td>Middle Level Methods and Curriculum</td>
<td>2</td>
</tr>
<tr>
<td>ES 318</td>
<td>Teacher Assisting</td>
<td>1</td>
</tr>
<tr>
<td>ES 328</td>
<td>Content Area Reading and Study Strategies</td>
<td>2</td>
</tr>
<tr>
<td>ES 385</td>
<td>Social Foundations: Human Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

Prescribed special methods course(s) (see approved majors and minors below)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 445</td>
<td>Student Teaching in Middle Level Education and Student Teaching in Secondary Education</td>
<td>12</td>
</tr>
<tr>
<td>ES 446</td>
<td>Internship Teaching in Middle Level Education</td>
<td></td>
</tr>
<tr>
<td>ES 470</td>
<td>Internship Teaching in Secondary Education</td>
<td></td>
</tr>
<tr>
<td>ES 490</td>
<td>Historical, Legal, and Philosophical Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>ES 497</td>
<td>Field Experience Seminar</td>
<td>2</td>
</tr>
<tr>
<td>SPED 300</td>
<td>Inclusive Practices for Secondary Educators</td>
<td></td>
</tr>
</tbody>
</table>

Approved Majors and Minors for Option B

<table>
<thead>
<tr>
<th>Comprehensive Majors</th>
<th>Code</th>
<th>Prescribed Methods Course</th>
<th>Additional Requirements</th>
<th>Praxis II Content Test Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>540-006</td>
<td>ENGL 319, ENGL 419</td>
<td></td>
<td>ETS 5038</td>
</tr>
<tr>
<td>Earth and Space Science</td>
<td>160-015</td>
<td>ES 360 (F)</td>
<td></td>
<td>ETS 5435</td>
</tr>
<tr>
<td>Mathematics</td>
<td>180-002</td>
<td>ES 357</td>
<td></td>
<td>ETS 5061</td>
</tr>
<tr>
<td>Physical Science</td>
<td>240-004</td>
<td>ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td>ETS 5435</td>
</tr>
<tr>
<td>Physics-Mathematics</td>
<td></td>
<td></td>
<td></td>
<td>ETS 5161 and ETS 5435 (regardless of emphasis)</td>
</tr>
<tr>
<td>Physics Emphasis</td>
<td>210-003</td>
<td>ES 357 (Sp) and ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td></td>
</tr>
<tr>
<td>Mathematics Emphasis</td>
<td>210-004</td>
<td>ES 357 (Sp) and ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td>500-XXX</td>
<td>ES 356</td>
<td>ECON 103, BIOL 180 or GEOG 178</td>
<td>ETS 5081</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Majors</th>
<th>Code</th>
<th>Prescribed Methods Course</th>
<th>Additional Requirements</th>
<th>Praxis II Content Test Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>080-205</td>
<td>ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td>ETS 5435</td>
</tr>
<tr>
<td>Chemistry</td>
<td>100-204</td>
<td>ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>360-204</td>
<td>ES 356</td>
<td>ECON 103, BIOL 180 or GEOG 178</td>
<td>ETS 5081</td>
</tr>
<tr>
<td>English</td>
<td>540-210</td>
<td>ENGL 319, ENGL 419</td>
<td></td>
<td>ETS 5038</td>
</tr>
<tr>
<td>History</td>
<td>380-206</td>
<td>ES 356</td>
<td>ECON 103, BIOL 180 or GEOG 178</td>
<td>ETS 5081</td>
</tr>
<tr>
<td>Mathematics</td>
<td>180-207</td>
<td>ES 357</td>
<td></td>
<td>ETS 5161</td>
</tr>
<tr>
<td>Physics</td>
<td>230-205</td>
<td>ES 360 (F)</td>
<td>BIOL 180 or GEOG 178</td>
<td>ETS 5435</td>
</tr>
<tr>
<td>Political Science</td>
<td>420-203</td>
<td>ES 356</td>
<td>ECON 103, BIOL 180 or GEOG 178</td>
<td>ETS 5081</td>
</tr>
<tr>
<td>Spanish</td>
<td>320-405</td>
<td>ES 366 (F)</td>
<td>Study abroad in language</td>
<td>WPT and OPI or OPIc</td>
</tr>
</tbody>
</table>
Teaching English to Speakers of Other Languages (TESOL)

1 Broadfield Science add-on certification is available with these majors and requires ES 360 (fall only). Students should contact their advisor to discuss their intention to add the Broadfield Science certification.

Admission Requirements

Admission to Professional Education Programs

Major Requirements

Teaching (Code 100-204)

The chemistry, teaching major is tailored to the needs of chemistry students interested in secondary education.

A minimum of 54-semester credits, including:

Core Requirements for A.C.S., Liberal Arts and Teaching Chemistry Majors

Chemistry Core

Select one of the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 115</td>
<td>Chemical Principles</td>
<td>6</td>
</tr>
<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 104</td>
<td>and General Chemistry II (and)</td>
<td></td>
</tr>
<tr>
<td>CHEM 105</td>
<td>General Chemistry I Lecture</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 106</td>
<td>and General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 109</td>
<td>and General Chemistry II with Lab</td>
<td></td>
</tr>
</tbody>
</table>

Required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 213</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 218</td>
<td>Introduction to Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 325</td>
<td>Organic Chemistry I with Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 326</td>
<td>Organic Chemistry II with Laboratory</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 231</td>
<td>University Physics I</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 232</td>
<td>University Physics II</td>
<td>5</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 39

1 Only six credits of the CHEM 103/CHEM 104 or CHEM 105/CHEM 106/CHEM 109 sequence are credited to the major.

Capstone Experience for Chemistry Majors

The capstone experience is met by completing by CHEM 411 for chemistry with business emphasis majors, and by CHEM 420, CHEM 438, CHEM 453 or CHEM 497 for other chemistry majors.

Chemistry, Major - Teaching Requirements

In addition to the chemistry core and required mathematics/physics courses, students must complete the following course work:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 433</td>
<td>Physical Chemistry I</td>
<td>8</td>
</tr>
<tr>
<td>&amp; CHEM 434</td>
<td>and Physical Chemistry II</td>
<td></td>
</tr>
</tbody>
</table>

One of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 420</td>
<td>Advanced Synthesis Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 438</td>
<td>Physical Analysis Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 453</td>
<td>Biochemistry Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Electives

Select 5 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 304</td>
<td>Environmental Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Bioinorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 352</td>
<td>Fundamentals of Biochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 361</td>
<td>Molecules and Medicine</td>
<td></td>
</tr>
<tr>
<td>CHEM 397</td>
<td>Chemical Literature and Communication</td>
<td></td>
</tr>
<tr>
<td>CHEM 399</td>
<td>Independent Study - Juniors</td>
<td></td>
</tr>
<tr>
<td>CHEM 401</td>
<td>Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 411</td>
<td>Survey of Industrial Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 420</td>
<td>Advanced Synthesis Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 426</td>
<td>Modern Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 438</td>
<td>Physical Analysis Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 444</td>
<td>Modern Applied Separations and Spectrometry</td>
<td></td>
</tr>
<tr>
<td>CHEM 453</td>
<td>Biochemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 460</td>
<td>Polymer Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 491</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>CHEM 495</td>
<td>Directed Studies</td>
<td></td>
</tr>
<tr>
<td>CHEM 497</td>
<td>Independent Study (ACS)</td>
<td></td>
</tr>
<tr>
<td>CHEM 499</td>
<td>Independent Study - Seniors</td>
<td></td>
</tr>
</tbody>
</table>

This major is restricted to students in the College of Education and Human Sciences: Education Studies: Option B and leads to licensure to teach Chemistry in Early Adolescence through Adolescence classrooms. A minor in biology, mathematics, or physics is recommended.

Broadfield Science licensure

NOTE: Completion of the following requirements and ES 360 may be used in lieu of a minor and adds Broadfield Science licensure to the Teaching major:

A) At least 14 credits from one of the following areas: 14

Option 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 214</td>
<td>Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 221</td>
<td>Foundations of Biology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 222</td>
<td>Foundations of Biology II</td>
<td></td>
</tr>
<tr>
<td>BIOL 223</td>
<td>Foundations of Biological Inquiry</td>
<td></td>
</tr>
<tr>
<td>BIOL 314</td>
<td>Human Anatomy and Physiology II</td>
<td></td>
</tr>
</tbody>
</table>

Option 2

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 211</td>
<td>General Physics</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 212</td>
<td>and General Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 231</td>
<td>University Physics I</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 232</td>
<td>and University Physics II</td>
<td></td>
</tr>
</tbody>
</table>

additional credits above 212

Option 3

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 106</td>
<td>Earth Science</td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>GEOL 115</td>
<td>Environmental Geology</td>
</tr>
<tr>
<td>GEOL 118</td>
<td>Societal Issues in Earth Science</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>GEOG 104</td>
<td>The Physical Environment</td>
</tr>
<tr>
<td>GEOG 340</td>
<td>Climatology</td>
</tr>
<tr>
<td>GEOG 361</td>
<td>Environmental Hazards</td>
</tr>
</tbody>
</table>

Required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 226</td>
<td>Astronomy-Solar System</td>
</tr>
</tbody>
</table>

Additional courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>GEOL 102</td>
<td>Oceanography</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Earth Resources</td>
</tr>
<tr>
<td>GEOL 303</td>
<td>Rocky Mountain Field Studies</td>
</tr>
<tr>
<td>GEOL 308</td>
<td>Water Resources</td>
</tr>
<tr>
<td>PHYS 229</td>
<td>Astronomy-Stars and Galaxies</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>Foundations of Geography</td>
</tr>
<tr>
<td>GEOG 304</td>
<td>Introduction to Geomorphology</td>
</tr>
<tr>
<td>GEOG 340</td>
<td>Climatology</td>
</tr>
<tr>
<td>GEOG 361</td>
<td>Environmental Hazards</td>
</tr>
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</table>

B) Eight credits in each of the two areas not selected in A above.

Option 1

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>BIOL 105</td>
<td>General Biology</td>
</tr>
<tr>
<td>BIOL 151</td>
<td>Biology of Humans</td>
</tr>
</tbody>
</table>

Option 2

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Option 3

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<td>The Physical Environment</td>
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Required:

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<tbody>
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<td>PHYS 226</td>
<td>Astronomy-Solar System</td>
</tr>
<tr>
<td>or PHYS 229</td>
<td>Astronomy-Stars and Galaxies</td>
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