B.S. IN ECOSYSTEM SCIENCE AND POLICY

The B.S. degree in Ecosystem Science and Policy is recommended for students intending to attend graduate or professional schools in pursuit of research or academic careers (including secondary or higher education). It is also suitable for those preparing for technical careers in government and private industries concerned with the environment. Students pursuing the B.S. may choose to have the major fulfill either the STEM or People & Society cognate; they will need to complete the other cognate plus the Arts & Humanities cognate. Students with a second major in another school or college should consult their advisors regarding requirements for that major and school or college. Any course used to fulfill one ECS requirement cannot be used to fulfill another; however, courses other than the ECS core can be used to fulfill requirements for a cognate, minor, or second major. Students whose primary college is Arts & Sciences are required to complete four courses designated as "Writing Intensive" (also known as "W") courses. Those seeking a B.S. degree in ECS must complete at least two, but as many as four, ECS courses designated as "W". These include ECS 113, 301, 302, 402, and 403. Up to two "W" courses may be selected from other departments. Students whose primary degree is in another school or college should follow its writing requirements.

### ECS Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECS 111</td>
<td>Introduction to the Earth's Ecosystem</td>
<td>3</td>
</tr>
<tr>
<td>ECS 112</td>
<td>Field Problems in Ecosystem Science and Policy</td>
<td>2</td>
</tr>
<tr>
<td>ECS 113</td>
<td>Introduction to Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECS 201</td>
<td>Seminar Series in Contemporary Environmental Issues I</td>
<td>1</td>
</tr>
<tr>
<td>or ECS 202</td>
<td>Seminar Series in Contemporary Environmental Issues II</td>
<td></td>
</tr>
<tr>
<td>ECS 232</td>
<td>Ecological Principles and Environmental Applications</td>
<td>3</td>
</tr>
<tr>
<td>or BIL 330</td>
<td>Ecology</td>
<td></td>
</tr>
<tr>
<td>ECS 301</td>
<td>Tools for Environmental Decision-Making: The Quantitative Perspective</td>
<td>3</td>
</tr>
<tr>
<td>ECS 302</td>
<td>Perspectives on Environmental Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>ECS 401</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>or ECS 402</td>
<td>Thesis</td>
<td></td>
</tr>
<tr>
<td>ECS 403</td>
<td>Interdisciplinary Approaches</td>
<td>3</td>
</tr>
<tr>
<td>ECS electives at the 300 level or higher</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

In addition, students must take the following courses, which may fulfill cognate or second major requirements:

### Science Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 111</td>
<td>Principles of Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHM 113</td>
<td>and Chemistry Laboratory I</td>
<td></td>
</tr>
<tr>
<td>CHM 112</td>
<td>Principles of Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHM 114</td>
<td>and Chemistry Laboratory II</td>
<td></td>
</tr>
<tr>
<td>CAE 240</td>
<td>Environmental Pollution</td>
<td>3</td>
</tr>
<tr>
<td>or CAE 340</td>
<td>Introduction to Environmental Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following ECS science tracks: 9-15

- **Environmental Chemistry Track:**
  - Select three of the following (must include 2 labs):
    - CHM 201 Organic Chemistry I (Lecture)
    & CHM 205 and Organic Chemistry Laboratory I
    - CHM 202 Organic Chemistry II (Lecture)
    & CHM 206 and Organic Chemistry Laboratory II
    - CHM 360 Physical Chemistry I (Lecture)
    & CHM 364 and Physical Chemistry (Laboratory I)
    - CHM 365 Physical Chemistry II (Lecture)
    & CHM 464 and Physical Chemistry (Laboratory II)
    - CHM 401 Environmental Chemistry

- **Environmental Health Track:**
  - Select three of the following:
    - CHM 201 Organic Chemistry I (Lecture)
    & CHM 205 and Organic Chemistry Laboratory I
    - MIC 301 Introduction to Microbiology and Immunology
    - MIC 322 Medical Parasitology

- **Geology Track:**
  - GSC 260 Earth Materials
  - Select two of the following:
    - GSC 360 Depositional and Diagenetic Systems
    - GSC 380 Paleontology and Stratigraphy
    - GSC 410 Environmental Geochemistry
    - GSC 420 Geophysics
    - GSC 480 Structural Geology
    - GSC 550 Hydrogeology

- **Geospatial Certificate Track:**
  - GEG 199 Introduction to GIS (Geographic Information Systems)
  - GEG 391 Intermediate GIS (Geographic Information Systems)
  - GEG 392 Remote Sensing of the Environment
  - Select two of the following:
    - GEG 491 GIS and Environmental Modeling
    - GEG 545 Special Topics (Web-GIS)
    - GEG 545 Special Topics (Advanced SAR Techniques and Applications)
    - GEG 545 Special Topics (GIS in Public Health)

- **Mathematics Track:**
  - MTH 359 Mathematical Models in Biology and Medicine
  - Select two of the following:
    - MTH 210 Introduction to Linear Algebra
    - MTH 310 Multivariable Calculus
    - MTH 311 Introduction to Ordinary Differential Equations

### Mathematics Courses

Select one of the following: 5-8

- MTH 151 Calculus I for Engineers
  & MTH 162 and Calculus II
- MTH 161 Calculus I
  & MTH 162 and Calculus II
**B.S. in Ecosystem Science and Policy**

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<tr>
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<tr>
<td>MTH 171</td>
<td>Calculus I</td>
</tr>
<tr>
<td>&amp; MTH 172</td>
<td>Calculus II</td>
</tr>
</tbody>
</table>

Select one of the following Statistics courses: 3 credit hours

- ECS 204: Environmental Statistics
- MSC 204: Environmental Statistics
- BIL 311: Biostatistics
- MTH 224: Introduction to Probability and Statistics
- PSY 292: Introduction To Biobehavioral Statistics For Non-Majors

**Social Science Core Courses**

Select one of the following Economics/Political Science courses for BS: 3 credit hours

- ECS 377: Topics in Environmental Economics and Development
- ECO 211: Economic Principles and Problems
- ECO 212: Economic Principles and Problems
- INS 102: Global Economics
- INS 421: Poverty and the Environment
- MSC 345: Economics of Natural Resources and the Environment
- POL 201: Introduction to American National Government
- POL 202: Introduction To Comparative Politics
- POL 203: Introduction To International Relations

Select one of the following ECS social science skills courses for BS: 3 credit hours

- BSL 212: Introduction to Business Law
- BSL/MSC 314: Ocean Law
- STC 114: Principles of Advertising
- JMM 106: Visual Design
- JMM 341: Web Design
- ECS 376: Topics in Environmental Communication
- ECS 377: Topics in Environmental Economics and Development
- EPS 321: Understanding Human Service Organizations
- FIN 300: Fundamentals of Finance for Non-Finance Majors
- FIN 302: Fundamentals of Finance
- GEG 120: Physical Geography
- GEG 199: Introduction to GIS (Geographic Information Systems)
- INS 503: Int Relations Topics (e.g., Role of Foreign Aid in International Development)
- LAS 502: Research Design in Latin American Studies
- MGT 303: Operations Management
- MGT 353: Introduction to Entrepreneurship
- MKT 201: Foundations of Marketing
- PHI 110: Critical Thinking
- PHI 215: Logic and Law
- POL 314: Legislative Processes
- POL 342: State and Local Government and Politics
- POL 353: Interest Groups and Lobbying

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<tr>
<td>POL 524</td>
<td>Non-Profit Organizations: Law, Policy, and Management</td>
</tr>
<tr>
<td>SOC 210</td>
<td>Introduction to Social Research</td>
</tr>
</tbody>
</table>

**Total Credit Hours**: 68-77

1. **Note**: CHM 111/CHM 113, CHM 112/CHM 114 must be taken before the Chemistry concentration. Fulfillment of the Chemistry concentration earns a Chemistry minor.

2. **Note**: BIL 150/BIL 151, BIL 160/BIL 161 and CHM 121, CHM 221, CHM 222 should be taken before the Environmental Health concentration.

3. **Note**: GSC 110/GSC 114 and GSC 111 should be taken before the Geology concentration. This plus the Geology concentration earns a minor in Geological Sciences.

4. **Note**: Fulfillment of the Geospatial Certificate PLUS GEG 110 earns a geography minor. This minor does NOT qualify for an Arts and Sciences B.S.; students completing the geospatial certificate concentration must complete an additional minor in one of the following for an Arts and Sciences B.S.: Biology, Chemistry, Computer Science, Geology, Marine Science, Mathematics, Physics.

5. **Note**: Calculus II must be taken before the Mathematics concentration. Fulfillment of the Mathematics concentration earns a Mathematics minor.

6. **Note**: ECS B.S. majors without a second major must take a GIS course, e.g., GEG 199.