BACHELOR OF SCIENCE IN ENVIRONMENTAL STUDIES: 
CONCENTRATION IN NATURAL RESOURCE MANAGEMENT 
AND CONSERVATION ROADMAP

120 Total Units Required
Minimum Number of Units in the Major: 65

<table>
<thead>
<tr>
<th>Course First Semester</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>CHEM 100</td>
<td>Preparation for Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>GE Area A: Oral Communication (A1) or Critical Thinking (A3)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area A: Written English Communication (A2)</td>
<td>3</td>
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</tr>
<tr>
<td>GE Area B: Quantitative Reasoning (B4)</td>
<td>3</td>
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<tr>
<td>GE Area C: Arts (C1) or Humanities (C2)</td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
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<thead>
<tr>
<th>Course Second Semester</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIOL 230</td>
<td>Introductory Biology I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 115 or CHEM 180</td>
<td>General Chemistry I: Essential Concepts of Chemistry or Chemistry for the Energy and the Environment</td>
<td>3-5</td>
</tr>
<tr>
<td>GE Area A: Oral Communication (A1) or Critical Thinking (A3)</td>
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</tr>
<tr>
<td>GE Area A: Written English Communication II (A4) or Written English Communication (A2) Stretch II</td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
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<td><strong>14-16</strong></td>
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<thead>
<tr>
<th>Course Third Semester</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIOL 240</td>
<td>Introductory Biology II</td>
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</tr>
<tr>
<td>GE Area A: Written English Communication II (A4) if not already satisfied or SF State Studies or University Elective</td>
<td>3</td>
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</tr>
<tr>
<td>GE Area B: Life Science (B2)</td>
<td>3</td>
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</tr>
<tr>
<td>GE Area C: Arts (C1)</td>
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<tr>
<td>GE Area D: U.S. History (D2) or U.S. and California Government (D3)</td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
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<tr>
<th>Course Fourth Semester</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ENVS 224</td>
<td>Research Methods for Environmental Studies</td>
<td>4</td>
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<tr>
<td><strong>Physical Environment – Select One:</strong></td>
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<tr>
<td>ERTH 230</td>
<td>Environmental Geology</td>
<td>3</td>
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<tr>
<td>GEOG 101</td>
<td>Our Physical Environment</td>
<td>3</td>
</tr>
<tr>
<td>GE Area C: Humanities: Literature (C3)</td>
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</tr>
<tr>
<td>GE Area D: Social Sciences (D1)</td>
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</tr>
<tr>
<td>GE Area D: U.S. History (D2) or U.S. and California Government (D3)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td></td>
<td><strong>16</strong></td>
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<thead>
<tr>
<th>Course Fifth Semester</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BIOL 458</td>
<td>Biometry</td>
<td>4</td>
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</tbody>
</table>
**ENVS 300**  
Environmental Studies  
3

**Ecology – Select One**  
3-4

**Biodiversity – Select One**  
3-5

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**Sixth Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIOL 530</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 450GW</td>
<td>Environmental Law and Policy - GWAR</td>
<td>3</td>
</tr>
<tr>
<td>Sustainability and Social Justice – Select One</td>
<td>3-4</td>
<td></td>
</tr>
</tbody>
</table>

**Global/International – Select One:**  
3-4

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 470</td>
<td>Climate Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ENVS/I R 331</td>
<td>Global Environmental Crisis</td>
<td>3</td>
</tr>
<tr>
<td>GEOG/I R 428</td>
<td>International Political Economy of Food and Hunger</td>
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</table>

**GE Area UD-C: Upper Division Arts and/or Humanities (Consider SF State Studies Course)**  
3

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**Seventh Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Area UD-B: Upper Division Physical and/or Life Sciences (Consider SF State Studies Course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area UD-D: Upper Division Social Sciences (Consider SF State Studies Course)</td>
<td>3</td>
<td></td>
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<tr>
<td>SF State Studies or University Elective</td>
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**Eighth Semester**

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ENVS 680</td>
<td>Environmental Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 690</td>
<td>Senior Seminar in Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>GEOG/ENVS 657</td>
<td>Natural Resource Management: Biotic Resources</td>
<td>4</td>
</tr>
<tr>
<td>Resource Policy and Techniques – Select One</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>SF State Studies or University Elective</td>
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<td></td>
</tr>
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To avoid taking additional units, it is recommended that you meet **LLD and SF State Studies** requirements (AERM, GP, ES, SJ) within your GE or major.

**Ecology**

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<tbody>
<tr>
<td>BIOL 482</td>
<td>Ecology (4 units)</td>
</tr>
<tr>
<td>BIOL 529GW</td>
<td>Plant Ecology - GWAR (4 units)</td>
</tr>
<tr>
<td>BIOL 532</td>
<td>Restoration Ecology (3 units)</td>
</tr>
<tr>
<td>BIOL 534</td>
<td>Wetland Ecology (4 units)</td>
</tr>
<tr>
<td>BIOL 582</td>
<td>Biological Oceanography (4 units)</td>
</tr>
<tr>
<td>BIOL 585</td>
<td>Marine Ecology (3 units)</td>
</tr>
</tbody>
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1. To avoid taking additional units, it is recommended that you meet **LLD and SF State Studies** requirements (AERM, GP, ES, SJ) within your GE or major.

2. ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of ENG 105 in the second semester; multilingual students may be advised into alternative English courses.

3. **Ecology**

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Bachelor of Science in Environmental Studies: Concentration in Natural Resource Management and Conservation Roadmap

4  **Biodiversity**
- BIOL 470 Natural History of Vertebrates (4 units)
- BIOL 475GW Herpetology - GWAR (3 units)
- BIOL 478GW Ornithology - GWAR (4 units)
- BIOL 504 Biology of the Fungi (4 units)
- BIOL 514 Plant Taxonomy (5 units)
- BIOL 570GW Biology of Fishes - GWAR (4 units)
  Or a second course chosen from the Ecology section

5  **Sustainability and Social Justice**
- ENVS 306 Economics and the Environment (3 units)
- ENVS 570 Applied Local Sustainability (3 units)
- PHIL 470 Environmental Ethics (3 units)
- USP 514 Sustainable Development in Cities (4 units)
- USP 515 Environmental Justice: Race, Poverty, and the Environment (4 units)

6  **Resources**
- CHEM 380 Chemistry Behind Environmental Pollution (3 units)
- GEOG 317 Geography of Soils (4 units)
- GEOG 427 Agriculture and Food Supply (4 units)
- GEOG 646 The Geography of Marine Resources (4 units)
- GEOG 647 Geography of Water Resources (4 units)
- GEOG 666 Geography of Garbage: Recycling and Waste Reduction (3 units)
- RPT 640 Recreational Use of National Parks and Protected Areas (3 units)

7  **Resource Policy and Techniques**
- ENVS 470 Climate Politics and Policy (3 units)
- ENVS 530 Environmental Leadership and Organizing (3 units)
- ENVS 570 Applied Local Sustainability (3 units)
- ENVS 306 Economics and the Environment (3 units)
- GEOG 652 Environmental Impact Analysis (4 units)
- GEOG 658 Land-Use Planning (4 units)