# 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</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
</tr>
<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>
<td></td>
</tr>
<tr>
<td>GE Area B: Quantitative Reasoning (B4)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area C: Arts (C1) or Humanities (C2)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 230</td>
<td>Introductory Biology I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 115</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></td>
<td></td>
<td>3-5</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 II (A4)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or Written English Communication II Stretch II</td>
<td>3-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14-16</td>
</tr>
<tr>
<td><strong>Third Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 240</td>
<td>Introductory Biology II</td>
<td>5</td>
</tr>
<tr>
<td>GE Area A: Written English Communication II (A4) if not already satisfied</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or SF State Studies or University Elective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GE Area B: Life Science (B2)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area C: Arts (C1)</td>
<td>3</td>
<td></td>
</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></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td><strong>Fourth Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENVS 224</td>
<td>Research Methods for Environmental Studies</td>
<td>4</td>
</tr>
<tr>
<td>Physical Environment – Select One:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERTH 230</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Area C: Humanities: Literature (C3)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area D: Social Sciences (D1)</td>
<td>3</td>
<td></td>
</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></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Fifth Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 458</td>
<td>Biometry</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 300</td>
<td>Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>Ecology – Select One</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Biodiversity – Select One</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>13-16</td>
</tr>
<tr>
<td><strong>Sixth Semester</strong></td>
<td></td>
<td></td>
</tr>
<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>
<tr>
<td>Global/International – Select One:</td>
<td>3-4</td>
<td></td>
</tr>
<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>
<td>3</td>
</tr>
<tr>
<td>GE Area UD-C: Upper Division Arts and/or Humanities (Consider SF State Studies Course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15-17</td>
</tr>
<tr>
<td><strong>Seventh Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select One:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 603</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 652</td>
<td>Environmental Impact Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 658</td>
<td>Land-Use Planning</td>
<td>3</td>
</tr>
<tr>
<td>Resources – Select One</td>
<td>3-4</td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td>SF State Studies or University Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15-17</td>
</tr>
<tr>
<td><strong>Eighth Semester</strong></td>
<td></td>
<td></td>
</tr>
<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>
</tbody>
</table>
SF State Studies or University Elective  

<table>
<thead>
<tr>
<th>Units</th>
<th>Total Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>15-16</td>
</tr>
<tr>
<td>2</td>
<td>120-129</td>
</tr>
</tbody>
</table>

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. Depending on courses completed through Early Start, students in Pathway/Category 3 or 4 may be required to enroll in a support course to complement their Quantitative Reasoning/B4 requirement. There are multiple course options for this pathway. Before enrolling in a B4 course, students should verify their MATH Pathway/Category in their Student Center (http://cms.sfsu.edu/content/student-center). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website (http://developmentalstudies.sfsu.edu).

4. Ecology
   - BIOL 482 Ecology (4 units)
   - BIOL 529GW Plant Ecology - GWAR (4 units)
   - BIOL 532 Restoration Ecology (3 units)
   - BIOL 534 Wetland Ecology (4 units)
   - BIOL 582 Biological Oceanography (4 units)
   - BIOL 585 Marine Ecology (3 units)

5. 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

6. 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)

7. 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)

8. 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)