BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE – ENVS ASSOCIATE DEGREE FOR TRANSFER (ADT) ROADMAP

This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Environmental Science. Twenty-one units in the major [BIOL and PHYS requirements; CHEM 180; GEOG 101; GEOG 160; MATH 226] and all lower-division GE requirements have been satisfied. Check with a major advisor about the most appropriate course sequence. Degree completion guaranteed in 60 units; see the Associate Degree for Transfer (ADT) section for more information (http://bulletin.sfsu.edu/undergraduate-admissions/transfer-students/).

### COURSE 

<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>GEOG 102</td>
<td>The Human Environment (Major Lower-Division Core, D1, ES, GP)</td>
<td>3</td>
</tr>
<tr>
<td>or University Elective if taken before transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 205</td>
<td>Geographic Techniques (Major Lower-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 500GW</td>
<td>Physical and Human Dimensions of Climate Change - GWAR (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Science (11-12 units) - Take One</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Environmental Management (11-12 units) - Take One</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>US History OR (<a href="http://bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#USHaGR">http://bulletin.sfsu.edu/undergraduate-education/graduation-requirements/#USHaGR</a>)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or University Elective if met before transfer</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Third Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 603</td>
<td>Introduction to Geographic Information Systems (Major Upper-Division Core)</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Science (11-12 units) - Take One</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Fourth Semester</strong></td>
<td>Senior Seminar in Geography and Environmental Science (Major Capstone)</td>
<td></td>
</tr>
<tr>
<td>Environmental Science (11-12 units) - Take One</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Environmental Management (11-12 units) - Take One</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>University Elective</strong></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Units</strong></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

1. Environmental Science Electives (12 units)
   - CHEM 380 Chemistry Behind Environmental Pollution (3 units) (UD-B, ES)
   - GEOG 312 Geography of Landforms (4 units)
   - GEOG 313 Earth’s Climate System (4 units)
   - GEOG 314 Bioclimatology (4 units)
   - GEOG 316 Biogeography (4 units)
   - GEOG 317 Geography of Soils (4 units)
   - GEOG 342/ERTH 442 Surface Water Hydrology (4 units)
   - GEOG 644 Water Quality (3 units)

2. Environmental Management Electives (12 units)
   - GEOG 421 Future Environments (3 units) (UD-D, ES, GP, SJ)
   - GEOG 427 Agriculture and Food Supply (4 units) (ES, GP)
   - GEOG 642/ERTH 642 Watershed Assessment and Restoration (4 units)
   - GEOG 646 The Geography of Marine Resources (4 units)
   - GEOG 647 Geography of Water Resources (4 units)
   - GEOG 648 Management of National Parks and Protected Areas (4 units)
   - USP 652 Environmental Impact Analysis (4 units)
   - ENVS 657 Natural Resource Management: Biotic Resources (4 units)
   - GEOG 666 Geography of Garbage: Recycling and Waste Reduction (3 units) (ES)

3. UD GE recommendations that satisfy US History if needed:
   - HIST 465, HIST 466, HIST 470, HIST 471

4. Analytical Methods Electives (8 units)
   - BIOL 458 Biometry (4 units)
   - GEOG 602 Field Methods in Physical Geography (4 units)
   - GEOG 610 Remote Sensing of the Environment I (4 units)
   - GEOG 611 Remote Sensing of the Environment II (4 units)
   - GEOG 620 Geographical Information Systems (4 units)
   - GEOG 621 Geographic Information Systems for Environmental Analysis (4 units)
   - GEOG 625 Programming for Geographic Information Science (4 units)
   - GEOG 629 Coastal and Marine Applications of GIS (3 units)

To Do at SF State:

Enough total units to reach 120 minimum for graduation; 30 units minimum at the upper-division level; to include the following:

- **GE Area UD-C: Upper-Division Arts and/or Humanities**
  - 3 units minimum at the upper-division level; to include the following:
  - Environmental Management (11-12 units)
  - Analytical Methods (8 units)
  - GE Area UD-D: Upper-Division Social Sciences

- **GE Area UD-D: Upper-Division Social Sciences**
  - 3 units minimum at the upper-division level; to include the following:
  - Environmental Science (11-12 units)
  - Environmental Management (11-12 units)
  - Analytical Methods (8 units)

- **GE Area UD-B: Upper-Division Physical and/or Life Sciences**
  - 3 units minimum at the upper-division level; to include the following:
  - Environmental Science (11-12 units)
  - Environmental Management (11-12 units)
  - Analytical Methods (8 units)
University-Wide Requirements: 9-15 units

- American Institutions (0-6 units): US History, US Government, CA Government. If not met in transfer, see next bullet.
- Upper-Division GE (9 units): Courses may satisfy the US History or US/CA Government requirements, and UD-C or UD-D at the same time, if approved for multiple areas.
- Students entering the major with the AS-T in ENVS are not required to fulfill SF State Studies requirements.

Environmental Science Major: 39-47 units

- BIOL and PHYS Requirements; CHEM 180, GEOG 101, GEOG 160, MATH 226 (21 units) met before transfer.
- Lower-Division Requirements (6 units) if not taken before transfer: GEOG 102, GEOG 205.
- Upper-Division Requirements (39-41 units)

University Electives: 1 or more units

Depends on course choices made at the community college, how transferred units are applied to the requirements above, and course choices at SF State - some courses may meet more than one requirement, e.g. in both UD GE and the major.