

# 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: 58

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

Course	Title	Units
<b>First Semester</b>		
ENG 114	Writing the First Year: Finding Your Voice (A2) <sup>1</sup>	3
ENVS 130	Environmental Studies (Major Core, ES)	3
GE Area A <sup>2</sup>		3
GE Area B: Quantitative Reasoning (B4) <sup>3</sup>		3
GE Area C		3
<b>Units</b>		<b>15</b>
<b>Second Semester</b>		
BIOL 230	Introductory Biology I (Major Core)	5
Select One (Major Core):		3-4
CHEM 115	General Chemistry I	
CHEM 180	Chemistry for Energy and the Environment (B1, B3, ES)	
GE Area A		3
GE Area E		3
<b>Units</b>		<b>14-15</b>
<b>Third Semester</b>		
BIOL 240	Introductory Biology II (Major Core)	5
GE Area B: Life Science (B2) and Laboratory Science (B3) <sup>4</sup>		3-4
GE Area C		3
GE Area D		3
<b>Units</b>		<b>14-15</b>
<b>Fourth Semester</b>		
ENVS 224	Research Methods for Environmental Studies (Major Core)	4
Physical Environment - Select One (Major Elective):		3

ERTH 230	Environmental Geology (B1, B3, ES)	
GEOG 101	Our Physical Environment (Prerequisite for GEOG 657 and many upper-division GEOG courses, B1, ES)	
GE Area C		3
GE Area D		3
SF State Studies or University Elective		3
<b>Units</b>		<b>16</b>
<b>Fifth Semester</b>		
BIOL 530	Conservation Biology (Major Core)	3
ENVS 680	Environmental Studies Internship (Major Core)	1-3
Biodiversity - Select One (Major Elective) <sup>5</sup>		3-5
GE Area F <sup>±</sup>		3
U.S. and California Government ( <a href="http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg">http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg</a> )		3
<b>Units</b>		<b>13-17</b>
<b>Sixth Semester</b>		
ENVS 450GW	Environmental Law and Policy - GWAR (Major Core)	3
GEOG/ENVS 657	Natural Resource Management: Biotic Resources	4
Ecology - Select One (Major Elective) <sup>6</sup>		3-4
Sustainability and Social Justice - Select One (Major Elective) <sup>7</sup>		3-4
GE Area UD-C: Upper-Division Arts and/or Humanities		3
<b>Units</b>		<b>16-18</b>
<b>Seventh Semester</b>		
Tools/Techniques - Select One (Major Elective):		3
GEOG 603	Introduction to Geographic Information Systems	
GEOG/USP 652	Environmental Impact Analysis	
GEOG/USP 658	Land-Use Planning	
Resources - Select One (Major Elective) <sup>8</sup>		3-4
GE Area UD-B: Upper-Division Physical and/or Life Sciences		3
GE Area UD-D: Upper-Division Social Sciences		3
SF State Studies or University Elective		4
<b>Units</b>		<b>16-17</b>
<b>Eighth Semester</b>		
ENVS 690	Senior Seminar in Environmental Studies (Major Core)	3
Resource Policy and Techniques - Select One (Major Elective) <sup>9</sup>		3-4
Global/International - Select One (Major Elective) <sup>10</sup>		3-4

SF State Studies or University Elective - Take Two	7
<b>Units</b>	<b>16-18</b>
<b>Total Units</b>	<b>120-131</b>

- 1 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.
- 2 To avoid taking additional units, it is recommended that you meet the **SF State Studies** (AERM, GP, ES, SJ) requirements within your GE or major.
- 3 To determine the best B4 course option, students should complete the online advising activity at mathadvising.sfsu.edu (<https://mathadvising.sfsu.edu/>). Questions? Contact Gator Smart Start. (<https://gatorsmartstart.sfsu.edu/>)
- 4 Consider taking a class combined with a laboratory or a separate lab to fulfill B3 if not already satisfied.
- 5 **Biodiversity - Select One:**  
 BIOL 470 Natural History of Vertebrates (4 units)  
 BIOL 475GW Herpetology - GVAR (3 units)  
 BIOL 478GW Ornithology - GVAR (4 units)  
 BIOL 502 Biology of the Algae (3 units)  
 BIOL 504 Biology of the Fungi (4 units)  
 BIOL 514 Plant Biodiversity and California Field Botany (5 units)  
 BIOL 570GW Biology of Fishes - GVAR (4 units)  
 Or a second course chosen from the Ecology section
- 6 **Ecology - Select One:**  
 BIOL 482 Ecology (4 units)  
 BIOL 529GW Plant Ecology - GVAR (4 units)  
 BIOL 532 Restoration Ecology (3 units)  
 BIOL 534 Wetland Ecology (4 units)  
 BIOL 582 Biological Oceanography & Limnology (4 units)  
 BIOL 585 Marine Ecology (3 units)  
 BIOL 586GW Marine Ecology Laboratory - GVAR (4 units)
- 7 **Sustainability and Social Justice - Select One:**  
 ENVS 460 Energy, Justice, and Sustainability (3 units)  
 ENVS 480 Climate Change Adaptation and Justice (3 units)  
 ENVS 570 Applied Local Sustainability (3 units) (ES)  
 PHIL 470 Environmental Ethics (3 units) (UD-C, ES, SJ)  
 USP 514 Sustainable Development in Cities (4 units) (ES, SJ)  
 USP 515/GEOG 667 Environmental Justice: Race, Poverty, and the Environment (4 units) (ES, GP, SJ)
- 8 **Resources - Select One:**  
 CHEM 380 Chemistry Behind Environmental Pollution (3 units) (UD-B, ES)  
 ENVS 460 Energy, Justice, and Sustainability (3 units)  
 EARTH 330 California Water (3 units) (UD-B, ES)  
 EARTH 335 Global Warming (3 units) (UD-B, ES, GP)  
 GEOG 317 Geography of Soils (4 units)  
 GEOG 427 Agriculture and Food Supply (4 units) (ES, GP)  
 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) (ES)  
 LS 430 Future of the Forests (3 units) (UD-B, ES, GP)  
 RPT 440 Urban Recreation and Parks (3 units) (UD-D, AERM, SJ)  
 RPT 640/ENVS 640 Recreational Use of National Parks and Protected Areas (3 units)
- 9 **Resource Policy and Techniques - Select One:**  
 ENVS 470 Climate Politics and Policy (3 units) (ES, GP)

- ENVS 480 Climate Change Adaptation and Justice (3 units)
- ENVS 530 Environmental Leadership and Organizing (3 units)
- ENVS 570 Applied Local Sustainability (3 units) (ES)
- GEOG 652/USP 652 Environmental Impact Analysis (4 units)
- GEOG 658/USP 658 Land-Use Planning (4 units)
- RRS 410/SOC 410 Grassroots Organizing for Change in Communities of Color (3 units) (UD-D, AERM, SJ)
- 10 **Global/International - Select One**  
 ENVS 331/I R 331 Global Environmental Crisis (4 units) (ES, GP, SJ)  
 ENVS 470 Climate Politics and Policy (3 units) (ES, GP)  
 ENVS 480 Climate Change Adaptation and Justice (3 units)  
 GEOG 428/I R 428 International Political Economy of Food and Hunger (4 units)

± Given catalog rights, fall 2023 transfer students do not need to complete an Area F course.