BS ENVIRONMENTAL MGMT AND PROTECTION
2022-2026

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Note: No Major, Support or Concentration courses may be selected as credit/no credit.

MAJOR COURSES		
NR 140	Careers in Natural Resources Management and Environmental Sciences	1
NR 142	Environmental Management	3
NR 208	Dendrology [1, 2]	3-4
or BIO 162	Introduction to Organismal Form and Function	
or BIO 222	Biodiversity of California	
or BIO 227	Wildlife Conservation Biology	
or GEOL 201	Physical Geology	
NR 215	Land and Resource Measurements	1
NR/LA 218	Introduction to Geographic Information Systems (GIS)	3
NR 306	Natural Resource Ecology and Habitat Management	4
or NR 304	Agroecology	
or NR 305	Forest Ecology and Silvics	
NR 314	Environmental Life-Cycle Analysis	4
or NR 445	Systems Thinking in Environmental Management	
NR 320	Watershed Processes and Management [2]	4
or NR 402	Forest Health	
or ERSC 303	Soil Erosion and Water Conservation	
NR 323	Human Dimensions in Natural Resources Management (Upper-Division D) [3]	4
or NR 324	Social Dimensions of Sustainable Food and Fiber Systems (Upper-Division D) [3]	
or NR 328	Environmental Leadership and Community Engagement (Upper-Division D) [3]	
NR 326	Natural Resources Economics and Valuation	4
NR 335	Conflict Management in Natural Resources	4
NR 363	Undergraduate Seminar	2
NR/CRP 404	Environmental Law	4
NR 416	Environmental Impact Analysis and Management	4
Select from the following: [4]		12
NR 425	Applied Resource Analysis and Assessment	
& NR 435	and Environmental Policy Analysis	
& NR 465	and Senior Project - Ecosystem Management	
NR 474	Forest Stewardship Practices	
& NR 475	and Senior Project - Forest Stewardship	
BIO 111	General Biology [1]	4
or BIO 150	Diversity and History of Life	
or BIO 161	Introduction to Cell and Molecular Biology	
BIO 114	Plant Diversity and Ecology (B2 & B3) [3]	4
or BOT 121	General Botany	
BRAE 237	Introduction to Engineering Surveying	2-3
or BRAE 345	Aerial Photogrammetry and Remote Sensing	
BRAE 348	Energy for a Sustainable Society (Upper-Division B) [3]	4
or ENVE 324	Introduction to Air Pollution	
or NR 310	Global Climate Change	
CHEM 127	Gen CHEM for Ag and Life Science I (B1 & B3) [3]	4
MATH 161	Calculus for the Life Sciences I (B4) [3,5]	4
or MATH 221	Calculus for Business and Economics (B4) [3]	
PHYS 121	College Physics I	4
SS 120	Introductory Soil Science	4
STAT 217	Introduction to Statistical Concepts and Methods (GE Electives) [3]	4
or STAT 218	Applied Stats for Life Sciences (GE Electives) [3]	
Concentration (41 units) or Approved Electives (29 units) in combination with Free Electives [6,7,8]		29-41
Total Major Units		**120-134**

GENERAL EDUCATION		
Area A	**English Language Communication and Critical Thinking**	
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking [9]	4
Area B	**Scientific Inquiry and Quantitative Reasoning**	
B1	Physical Science (4 units in Major) [3]	0
B2	Life Science (4 units in Major) [3]	0
B3	One lab taken with either a B1 or B2 course	
B4	Mathematics/Quantitative Reasoning (4 units in Major) [3]	0
Upper-Division B (4 units in Major) [3]		0
Area C	**Arts and Humanities**	
Lower-division courses in Area C must come from three different subject prefixes.		
C1	Arts: Arts, Cinema, Dance, Music, Theater	4
C2	Humanities: Literature, Philosophy, Languages other than English	4
Lower-Division C Elective - Select a course from either C1 or C2		4
Upper-Division C [10]		4
Area D	**Social Sciences - Select courses in Area D from at least two different prefixes**	
D1	American Institutions (Title 5, Section 40404 Requirement)	4
D2	Lower-Division D	4
Upper-Division D (4 units in Major) [3]		0
Area E	**Lifelong Learning and Self-Development**	
Lower-Division E		4
Area F	**Ethnic Studies**	
F	Ethnic Studies	4
GE Electives in Areas B, C, and D		
Select courses from two different areas; may be lower-division or upper-division courses.		
GE Electives (4 units B in Major) [3]		0
GE Electives (Area C or D)		4
Total GE Units		**48**
FREE ELECTIVES		**0-12**
TOTAL DEGREE UNITS		**180-182**

FOOTNOTES

1 Students in the Wildlife Biology concentration need to take BIO 161 and BIO 162 to meet prerequisites for courses in the concentration.
2 Students in the Watershed Management and Hydrology concentration need to take GEOL 201 & NR 320 to meet prerequisites for courses in the concentration.
3 Required in Major or Support; also satisfies General Education (GE) requirement.
4 Students must choose to take either NR 425, NR 435, and NR 465 or NR 474 and NR 475.
5 Students in the Watershed Management and Hydrology concentration need to take MATH 161 to meet prerequisites for courses in the concentration.
6 Unless a concentration is declared, the default will be a combination of Approved Electives and Free Electives.
7 Students who do not declare a concentration are encouraged to use Approved Electives and Free Electives to earn one or more minors. See the below Approved Electives Guide for recommended minors.
8 If a course is taken to meet a Major or Support requirement, it cannot be double-counted in a concentration or as an approved elective.
9 Recommended course to satisfy GE Area A3: ENGL 147.
10 Recommended courses to satisfy GE Area Upper-division C: NR 360 or ENGL 316.

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Watershed Management and Hydrology Concentration		
CHEM 128	General Chemistry for Agriculture and Life Science II	4
CHEM 312	Organic Chemistry: Fundamentals and Applications	5
ERSC 442	Applied Environmental Groundwater Hydrology	4
or ERSC 443	Applied Environmental Contaminant Transport	
MATH 162	Calculus for the Life Sciences II	4
NR 420	Watershed Assessment and Protection	4
PHYS 122	College Physics II	4
SS 321	Soil Morphology	4
SS 440	Forest and Range Soils	4
or SS 431	Digital Soil Mapping	
Approved Electives [1,2]		
Select from the following:		8
BRAE 340	Irrigation Water Management	
BRAE 345	Aerial Photogrammetry and Remote Sensing	
BRAE 532	Water Wells and Pumps	
ERSC 303	Soil Erosion and Water Conservation	
ERSC 423	Geomorphology	
ERSC 442	Applied Environmental Groundwater Hydrology	
ERSC 443	Applied Environmental Contaminant Transport	
GEOL 241	Physical Geology Laboratory	
NR 260	Forest Operations	
NR 315	Forest Mensuration	
NR 339	Internship in Forest and Natural Resources	
NR 400	Special Problems for Advanced Undergraduates	
NR/CRP 408	Water Resource Law and Policy	
NR 413	Agricultural Law	
NR 418	Applied GIS	
NR/BIO/SS 421	Wetlands	
NR 422	Stream Measurements and Water Quality Monitoring	
NR 472	Leadership Practice	
NR 474	Forest Stewardship Practices	
SS 431	Digital Soil Mapping	
SS 440	Forest and Range Soils	
STAT 313	Applied Experimental Design and Regression Models	
Total Units		**41**

1 If a course is taken to meet a Major requirement, it cannot be double-counted as an Approved Elective for the concentration.

2 Consultation with an advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

Wildlife Biology Concentration		
ASCI 239	Principles of Rangeland Management	4
BIO 321	Mammalogy	4
BIO 323	Ornithology	4
BIO 327	Wildlife Ecology	4
BIO 363	Principles of Conservation Biology	4
or BIO 444	Population Ecology	
BIO 427	Wildlife Management	4
BOT 313	Taxonomy of Vascular Plants	4
BOT 433	Field Botany: California Plant Diversity	5
Approved Electives		
Select from the following:		8
BIO 150	Diversity and History of Life	
BIO 263	Introductory Ecology and Evolution	
BIO 322	Ichthyology	
BIO 324	Herpetology	
BIO 329	Vertebrate Field Zoology	
BIO 330	Extended Field Biology Activity	
BIO 335	General Entomology	
BIO 336	Invertebrate Zoology	
BIO 363	Principles of Conservation Biology	
BIO 400	Special Problems for Advanced Undergraduates	
BIO 415	Biogeography	
BIO 427	Wildlife Management	
BIO 429	Parasitology	
BIO 434	Environmental Physiology	
BIO 442	Behavioral Ecology	
BIO 444	Population Ecology	
BOT 326	Plant Ecology	
NR 400	Special Problems for Advanced Undergraduates	
PLSC 313	Agricultural Entomology	
Total Units		**41**

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Approved Electives Guide

Approved Electives are courses that support the below career areas. Refer to number(s) next to each course to identify which courses align with each of the career areas. Consultation with an advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

1. Climate Change Science
2. Environmental Mitigation Strategies
3. Environmental Policy and Management
4. Environmental Soil Science
5. Forest and Environmental Practices
6. Geology
7. Geospatial Technology
8. Sustainable Agriculture
9. Urban Forestry

If any of the remaining 48 units of general education is used to satisfy an Approved Elective, additional free electives may be needed to complete the total units for the degree.
Additionally, a student may earn one or more of the following minors through the appropriate selection of Approved Electives in combination with Free Electives (refer to advising materials for the minor):

Agribusiness
Anthropology and Geography
Biology
City and Regional Planning
Entrepreneurship
Environmental Soil Science
Geographic Information Systems for Agriculture
Geology
Indigenous Studies in Natural Resources and the Environment
Land Rehabilitation and Restoration Ecology
Law and Society
Political Science
Spanish
Sustainable Agriculture
Sustainable Environments
Water Science

Approved Electives [6,7,8] Select from the following:

Select from the following:

At least 6 units must be upper-division (300-400 level). Additional units of upper-division coursework may be needed, depending on coursework taken in Major or Support.

If a course is taken to meet a Major or Support requirement, it cannot be double-counted as an Approved Elective.

AG/PLSC 315	Principles of Organic Crop Production [8]
AG 339	Internship in Agriculture [8]
AG/EDES/ ENGR/ISLA/ SCM/UNIV 350	The Global Environment [8]
AG 360	Holistic Management [5, 8]
AGB 212	Agricultural Economics [8]
AGB 312	Agricultural Policy [8]
AGB 369	Agricultural Personnel Management [8]
AGC 205	Agricultural Communications
ANT 201	Cultural Anthropology [1]
or ANT 202	World History Before Writing
or GEOG 150	Human Geography
ANT 250	Biological Anthropology [1]
ASCI 112	Principles of Animal Science [8]
ASCI 221	Introduction to Beef Production [8]
ASCI 223	Systems of Small Ruminant Management [8]
ASCI 239	Principles of Rangeland Management [1,2,3,8]
ASCI 311	Advanced Beef Cattle System Management [8]
ASCI 370	Rangeland Improvements [1,2,3,8]
ASCI 465	Applied Practices for Monitoring California Rangelands [1,2,3,8]
BIO 329	Vertebrate Field Zoology [2]
BIO 400	Special Problems for Advanced Undergraduates
BIO 427	Wildlife Management [2]
BIO 435	Plant Physiology [5]
BIO 447	Spatial Ecology [2,7]
BOT 121	General Botany [5]
BRAE 141	Agricultural Machinery Safety [8]
BRAE 142	Agricultural Power and Machinery Management [8]
NR/RPTA 203	Resource Law Enforcement [2,3,5]
NR 204	Wildland Fire Control [5, 9]
NR/ES 308	Fire and Society [5]
NR 312	Technology of Wildland Fire Management [5]
NR 324	Social Dimensions of Sustainable Food & Fiber Systems [8]
NR 328	Environ Leadership & Comm Engage [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR 339	Internship in Forest & Natural Resource [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR 340	Wildland Fire Management [5, 8, 9]
NR 350	Urban Forestry [5, 9]
NR 355	Drone Assisted Surveying [7]
NR/ES 360	Ethnicity and the Land [5]
NR 400	Special Problems for Advanced Undergraduates [5, 9]
NR/CRP 404	Environmental Law [2, 5, 8, 9]
NR/ES 406	Indigenous Peoples and International Law and Policy [9]
NR/CRP 408	Water Resource Law and Policy [2, 3, 5, 8]
NR 413	Agricultural Law [1,2,3,4,8]
NR 418	Applied GIS [1, 5, 7, 9]
NR 420	Watershed Assessment and Protection [5]
NR/BIO/SS 421	Wetlands [2, 4, 5]
NR 422	Stream Measurements and Water Quality Monitoring [5,9]
NR 434	Wood Properties, Products and Sustainable Uses [5, 9]
NR 435	Environmental Policy Analysis [1, 3]
NR 445	Systems Thinking in Environ Mngmt [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR 455	Wildland-Urban Fire Protection [5, 9]
PHIL 340	Environmental Ethics [3]
PHYS 122	College Physics II [6]
or PHYS 142	General Physics II
PLSC 123	Landscape Installation and Maintenance [5, 9]
PLSC 124	Plant Propagation [5, 9]

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BRAE 150	Design Graphics and CAD for Agricultural Engineering [5, 7]
BRAE 239	Engineering Surveying [7]
BRAE 333	Aquacultural Engineering [1,2,3,8]
BRAE 340	Irrigation Water Management [5, 8]
BRAE 345	Aerial Photogrammetry and Remote Sensing [7]
BRAE 348	Energy for a Sustainable Society [1]
BRAE 349	Water for a Sustainable Society [4, 8]
BRAE 447	Advanced Surveying with GIS Applications [7]
CE 112	Design Principles in Civil Engineering [7]
CE 113	Computer Aided Drafting in Civil Engineering [7]
CHEM 128	General Chemistry for Agriculture and Life Science II [4]
CHEM 129	General Chemistry for Agriculture and Life Science III [4]
CHEM 312	Organic Chemistry: Fundamentals and Applications [4]
CRP 212	Introduction to Urban Planning [2, 5, 7, 9]
CRP 336	Introduction to Environmental Planning [5, 7]
CRP 420	Land Use Law [3, 5]
ECON 221	Microeconomics [3]
EDES 406	Sustainable Environments [8]
ENGL 147	Writing Arguments about STEM [1,2,3]
ENGL 316	Writing Sustainability [1,2,3]
ERSC 223	Rocks and Minerals [3, 4, 5, 6, 7]
ERSC/GEOG 250	Physical Geography [1, 7]
ERSC 303	Soil Erosion and Water Conservation [4, 8]
ERSC/GEOG 325	Climate and Humanity [1]
ERSC/GEOG 414	Global and Regional Climatology [1]
ERSC/GEOG 415	Applied Meteorology and Climatology [1]
ERSC 423	Geomorphology [4, 6]
ERSC 442	Applied Environmental Groundwater Hydrology [4]
ERSC 443	Applied Environmental Contaminant Transport [4]
GEOG 308	Global Geography [1]
GEOG 328	Applications in Remote Sensing and GIS [1, 7]
GEOG 435	Biodiversity and Biogeography Methods
GEOL 206	Geologic Excursions [6]
GEOL 241	Physical Geology Laboratory [6]
GEOL 305	Seismology and Earth Structure [6]
GEOL 309	Igneous Petrology [6]
GEOL 311	Metamorphic Petrology [6]
GEOL 330	Principles of Stratigraphy [6]
GEOL 415	Structural Geology [6]
GEOL 420	Applied Geophysics [6]
GEOL/ERSC 416	Field-Geology Methods [6]
GEOL/ERSC 417	Geologic Mapping [6]
JOUR 203	News Reporting and Writing [5]
MATH 142	Calculus II [6]
or MATH 162	Calculus for the Life Sciences II
MCRO 221	Microbiology [5]
MCRO 436	Microbial Ecology [5]
NR 200	Special Problems for Undergraduates [1,2,3,4,5,6,7,8,9]
PLSC 203	Organic Enterprise Project [8]
PLSC 230	Environmental Horticulture [8, 9]
PLSC 233	Plant Materials I [5, 9]
PLSC 234	Plant Materials II [5, 9]
PLSC 244	Precision Farming [7, 8]
PLSC 313	Agricultural Entomology [8]
PLSC 321	Weed Biology and Management [5, 8]
PLSC 323	Plant Pathology [8]
PLSC 327	Vertebrate Pest Management [5]
PLSC 350	Abiotic Plant Problems [9]
PLSC 381	Native Plants for California Landscapes [8, 9]
PLSC 420	Organic Crop Production Systems [8]
PLSC 425	Arboriculture [5, 9]
PLSC 431	Insect Pest Management [8]
PLSC 441	Biological Control for Pest Management [8]
PLSC 445	Cropping Systems [8]
PLSC 450	Current Issues in the Strawberry Industry [8]
POLS 112	American and California Government [3]
POLS 245	Judicial Process [3]
POLS 332	World Food Systems
POLS 341	American Constitutional Law [3]
POLS 343	Civil Rights in America [3]
POLS 344	Civil Liberties [3]
PSC 201	Physical Oceanography [1]
RPTA 112	Introduction to Parks and Outdoor Recreation [2]
RPTA 210	Experience Design [2]
RPTA 255	Leadership and Diverse Groups [2]
RPTA 302	Environmental and Wilderness Education [2]
RPTA 313	Sustainability in the Experience Industry
RPTA 314	Sustainable Travel and Tourism Planning
RPTA 321	Visitor Services in Experience Industry Management
RPTA 325	Leadership in Outdoor Experiences [2]
RPTA 412	Advanced Experience Industry Management Applications
RPTA 413	Tourism and Protected Area Management
SS 221	Soil Health and Plant Nutrition [4, 5, 8]
SS 321	Soil Morphology [3, 4, 5, 7]
SS 322	Soil Plant Relationships [4, 8]
SS 422	Soil Ecology [4]
SS 423	Environmental Soil and Water Chemistry [4]
SS 431	Digital Soil Mapping [2, 4, 5, 7, 9]
SS 440	Forest and Range Soils [4, 5, 9]
SS 444	Soil Judging [4]
UNIV 391	Appropriate Tech for the World's People: Development [8]
WVIT 233	Basic Viticulture [8]
WVIT 331	Advanced Viticulture - Fall [8]
WVIT 332	Advanced Viticulture - Winter [8]
WVIT 333	Advanced Viticulture - Spring [8]
WVIT 428	Winegrape Vineyard Management [8]

Any SCM course and any upper-division AG, ANT, BIO, BOT, BRAE, CHEM, CM, COMS, CRP, EDES, ERSC, GEOG, GEOL, JOUR, LA, MCRO, MSCI, NR, PHIL, PHYS, PLSC, POLS, PSY, SS, STAT, or UNIV courses