BS FOREST AND FIRE SCIENCES
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 141	Introduction to Forest Ecosystem Management	3
NR 204	Wildland Fire Control	3
NR 208	Dendrology	4
NR 215	Land and Resource Measurements	1
NR/LA 218	Introduction to Geographic Information Systems (GIS)	3
NR 260	Forest Operations	4
NR 305	Forest Ecology and Silvics	4
NR 307	Fire Ecology	3
NR 308	Fire and Society (Upper-Division D) [1]	4
NR 310	Global Climate Change (Upper-Division B) [1]	4
NR 315	Forest Mensuration	4
NR 320	Watershed Processes and Management	4
NR 326	Natural Resources Economics and Valuation	4
NR 335	Conflict Management in Natural Resources	4
NR 350	Urban Forestry	3
NR 365	Silviculture and Fuels Management	4
NR 402	Forest Health	4
NR 414	Sustainable Forest Management	4
Select from the following: [2]		12
NR 416 & NR 435 & NR 465	Environmental Impact Analysis and Management and Environmental Policy Analysis and Senior Project - Ecosystem Management	
NR 474 & NR 475	Forest Stewardship Practices and Senior Project - Forest Stewardship	
Concentration (26-28 units) or Approved Electives (14 units) in combination with Free Electives [3, 4]		14-28
Total Major Units		**91-105**

SUPPORT COURSES		
ASCI 239 or BIO 227 or BIO 363 or BIO 427 or PHYS 121	Principles of Rangeland Management [5] Wildlife Conservation Biology Principles of Conservation Biology Wildlife Management College Physics I	4
BOT 121	General Botany (B2 & B3) [1]	4
BRAE 237 or BRAE 239	Introduction to Engineering Surveying Engineering Surveying	2-4
BRAE 345	Aerial Photogrammetry and Remote Sensing	3
CHEM 127	General Chemistry for Agriculture and Life Science I (B1 & B3) [1]	4
MATH 161 or MATH 221	Calculus for the Life Sciences I (B4) [1, 6] Calculus for Business and Economics (B4) [1]	4
SS 120	Introductory Soil Science	4
STAT 217 or STAT 218	Introduction to Statistical Concepts and Methods (GE Electives) [1] Applied Statistics for the Life Sci (GE Electives)[1]	4
Total Support Units		**29-31**

GENERAL EDUCATION		
Area A	**English Language Communication and Critical Thinking**	
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking[7]	4
Area B	**Scientific Inquiry and Quantitative Reasoning**	
B1	Physical Science (4 units in Support) [1]	0
B2	Life Science (4 units in Support) [1]	0
B3	One lab taken with either a B1 or B2 course	
B4	Mathematics/Quantitative Reasoning (4 units in Support) [1]	0
Upper-Division B (4 units in Major) [1]		0
Area C	**Arts and Humanities**	
Lower-division courses in Area C must come from three different subject prefixes.		
C1	Arts	4
C2	Humanities	4
Lower-Division C Elective - Select a course from either C1 or C2		4
Upper-Division C[8]		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) [1]		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 Support) [1]		0
GE Electives (Area C or D)		4
Total GE Units		**48**
FREE ELECTIVES		**0-12**
TOTAL DEGREE UNITS		**180-184**

FOOTNOTES

1 Required in Major or Support; also satisfies General Education (GE) requirement.
2 Students must choose to take either NR 416, NR 435, and NR 465 or NR 474 and NR 475.
3 Unless a concentration is declared, the default will be a combination of Approved Electives and Free Electives.
4 Students who do not declare a concentration are encouraged to use Approved Electives and Free Electives to earn a minor. See the below Approved Electives Guide for recommended minors.
5 Students in the Watershed Management and Hydrology concentration need to take PHYS 121 and students in the Wildlife Biology concentration need to take BIO 427 to meet prerequisites for courses in the concentration.
6 Students in the Watershed Management and Hydrology concentration need to take MATH 161 to meet prerequisites for courses in the concentration.
7 Recommended course to satisfy GE Area A3: ENGL 147.
8 Recommended course to satisfy GE Area Upper-division C: NR 360 or ENGL 316.

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Watershed Management and Hydrology Concentration		
CHEM 128	Gen Chemistry for Agriculture and Life Science II	4
MATH 162	Calculus for the Life Sciences II	4
NR 363	Undergraduate Seminar	2
NR 420	Watershed Assessment and Protection	4
PHYS 122	College Physics II	4
SS 321	Soil Morphology	4
Approved Electives [1, 2]		
Select from the following:		4
BRAE 340	Irrigation Water Management	
BRAE 532	Water Wells and Pumps	
CHEM 312	Organic Chemistry: Fundamentals and Applications	
ERSC 303	Soil Erosion and Water Conservation	
ERSC 423	Geomorphology	
ERSC 442	Applied Environmental Groundwater Hydrology	
ERSC 443	Applied Environmental Contaminant Transport	
GEOL 201	Physical Geology	
GEOL 241	Physical Geology Laboratory	
NR 339	Internship in Forest and Natural Resources	
NR 400	Special Problems for Advanced Undergraduates	
NR/CRP 408	Water Resource Law and Policy	
NR 418	Applied GIS	
NR/BIO/SS 421	Wetlands	
NR 422	Stream Measurements & Water Quality Monitoring	
NR 472	Leadership Practice	
NR 475	Senior Project - Forest Stewardship	
SS 424	Environmental Soil Physics - Senior Project	
SS 431	Digital Soil Mapping	
SS 440	Forest and Range Soils	
STAT 313	Applied Experimental Design & Regression Models	
Total Units		**26**

1 If a course is taken to meet a Major or Support 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		
BIO 161	Introduction to Cell and Molecular Biology	4
BIO 162	Introduction to Organismal Form and Function	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	
BOT 313	Taxonomy of Vascular Plants	4
Total Units		**28**

Wildland Fire and Fuels Managment Concentration		
NR 312	Technology of Wildland Fire Management	4
NR 340	Wildland Fire Management	3
NR 363	Undergraduate Seminar	2
NR 455	Wildland-Urban Fire Protection	4
Approved Electives [1,2]		
Select from the following:		14
BOT 326	Plant Ecology	
CRP 212	Introduction to Urban Planning	
CRP 336	Introduction to Environmental Planning	
CRP 342	Environmental Planning Methods	
CRP 458	Hazard Mitigation Planning & Resilient Design	
KINE 181	Responding to Emergencies: Comprehensive First Aid, CPR, AED	
LA 221	California Plants and Plant Communities	
NR 200	Special Problems for Undergraduates	
NR/RPTA 203	Resource Law Enforcement	
NR 339	Internship in Forest and Natural Resources	
NR 400	Special Problems for Advanced Undergraduates	
NR/CRP 404	Environmental Law	
NR/ES 406	Indigenous Peoples & International Law & Policy	
NR/CRP 408	Water Resource Law and Policy	
NR 418	Applied GIS	
NR 420	Watershed Assessment and Protection	
NR 425	Applied Resource Analysis and Assessment	
NR 475	Senior Project - Forest Stewardship	
PLSC 230	Environmental Horticulture	
PLSC 381	Native Plants for California Landscapes	
PLSC 425	Arboriculture	
SS 321	Soil Morphology	
SS 440	Forest and Range Soils	
Any CSU-transferable course recognized by Cal Regional Fire Academy		
Any CSU-transferable fire technology course		
Any CSU-transferable emergency medical technician course		
Total Units		**27**

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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

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 minor):

Anthropology and Geography
Biology
Geographic Information Systems for Geology
Indigenous Studies in Natural Resources and Sustainable Environments
Water Science

If any of the remaining 48 units of general education is used to satisfy an Approvd Elective, additional Free electives may be needed to complete the total units for the degree.

Approved Electives [3,4]

Select from the following:

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 [5]
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 311	Advanced Beef Cattle System Management [8]
ASCI 372	California Rangeland & Ranch Resource Management [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 [2]
BIO 427	Wildlife Management [2]
BIO 435	Plant Physiology [5]
BIO 447	Spatial Ecology [2,7]
BOT/PLSC 323	Plant Pathology [8]
BRAE 141	Agricultural Machinery Safety [8]
BRAE 142	Agricultural Power and Machinery Management [8]
BRAE 150	Design Graphics and CAD for Agricultural Engineering
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]
MCRO 436	Microbial Ecology [5]
NR 142	Environmental Management [8]
NR 200	Special Problems for Undergraduates [1,2,3,4,5,6,7,8,9]
NR 203	Resource Law Enforcement [5,9]
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 System [8]
NR 339	Internship in Forest & Natural Resources [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 [4]
NR/ES 360	Ethnicity and the Land [5]
NR 363	Undergraduate Seminar [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR 400	Special Problems for Adv Undergraduates [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR/CRP 404	Environmental Law [2, 3, 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 & Water Quality Monitoring [5, 9]
NR 434	Wood Properties, Products and Sustainable Uses [5, 9]
NR 445	Systems Thinking in Envi Management [1, 2, 3, 4, 5, 6, 7, 8, 9]
NR 455	Wildland-Urban Fire Protection [5, 9]
NR 472	Leadership Practice [3, 5]
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]
PLSC 203	Organic Enterprise Project [8]

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BRAE 348	Energy for a Sustainable Society [1]
BRAE 349	Water for a Sustainable Society [1,2,3,8]
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 [3, 5, 7, 9]
CRP 336	Introduction to Environmental Planning [5, 7]
CRP 420	Land Use Law [3, 5]
ECON 221	Microeconomics [3]
ECON 431	Environmental Economics [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]
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/GEOL 416	Field-Geology Methods [6]
ERSC/GEOL 417	Geologic Mapping [6]
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 201	Physical Geology [6]
GEOL 206	Geologic Excursions [6]
GEOL 241	Physical Geology Laboratory [6]
GEOL 305	Seismology and Earth Structure [6]
GEOL 309	Igneous Petrology
GEOL 311	Metamorphic Petrology
GEOL 330	Principles of Stratigraphy [6]
GEOL 415	Structural Geology [6]
GEOL 420	Applied Geophysics [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]
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 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 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 [3]
RPTA 210	Experience Design [3]
RPTA 255	Leadership and Diverse Groups [2]
RPTA 302	Environmental and Wilderness Education [3]
RPTA 325	Leadership in Outdoor Experiences [3]
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 [3, 4, 5, 7, 9]
SS 440	Forest and Range Soils [4, 5, 7, 9]
SS 444	Soil Judging [4]
UNIV 391	Appropriate Tech for the World's People: Develop [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, COMS, CRP, EDES, ERSC, GEOG, GEOL, JOUR, LA, MCRO, NR, PLSC, RPTA, SS or UNIV courses