

FOREST AND FIRE SCIENCES (BS)

Degree Requirements and Curriculum

In addition to the program requirements listed on this page, student must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/>) section of this catalog, including:

- 40 units of upper-division courses
- 2.0 GPA
- Graduation Writing Requirement (GWR)
- U.S. Cultural Pluralism (USCP)

Note: No Major, Support or Concentration courses may be selected as credit/no credit. In addition, no more than 12 units of cooperative or internship courses can count towards your degree requirements.

Code	Title	Units
MAJOR COURSES		
NR 1141	Introduction to Forest Ecosystem Management	4
NR 2208	Dendrology	3
NR/LA 2218	Introduction to Geographic Information Systems (GIS)	3
NR 3305	Forest and Fire Ecology	4
NR 3308	Fire and Society (Upper-Division 4) ¹	3
NR 3315	Forest Mensuration	4
NR 3319 & NR 3320	Watershed Processes and Management and Watershed Processes and Management Laboratory	3
NR 4365	Silviculture and Fuels Management	4
NR 4402	Forest Health and Disturbance Ecology	3
NR 4414	Sustainable Forest Management and Forest Operations	2
NR 4417	Natural Resource Protection and Policy	3
Select from the following:		3
NR 4460	Senior Project - Watershed Assessment and Protection	
NR 4466	Senior Project - Wildland-Urban Interface Fire Protection	
NR 4475	Senior Project - Forest Stewardship Practices	
Concentration		
(See list of Concentrations below) ²		22
SUPPORT COURSES		
Select from the following: (5B & 5C) ¹		4
BIO 1114	Plant Diversity and Ecology	
BOT 1121	General Botany	
BRAE 2237	Introduction to Engineering Surveying	2
CHEM 1120	Fundamentals of Chemical Structure and Properties (5A) ¹	4
ECON 2001	Survey of Economics (4B) ¹	3
MATH 1264	Calculus for Data Science I (2) ¹	4
SS 1120	Introductory Soil Science	4
STAT 1110	Applied Statistical Concepts and Methods	3
GENERAL EDUCATION (GE)		
(See GE program requirements below)		27
FREE ELECTIVES		
Free Electives ³		8
Total Units		120

¹ Required in Major or Support; also satisfies General Education (GE) requirement.

² Courses may need to be at the 3000-4000 level to ensure completion of the requirement minimum of 40 units of upper-division.

³ If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

Concentrations

Forest Resources

Code	Title	Units
REQUIRED COURSES		
NR 2204	Wildland Fire Control	3
NR 2350	Urban Forestry	3
NR 4403	Forest Health and Disturbance Ecology Laboratory	1
Approved Electives		
Select from the following: ^{1,2}		15
BIO 3321	Mammalogy	
BIO 3323	Ornithology	
BIO 3327	Wildlife Ecology	
BIO 4446	Ecosystem Ecology	
BIO 4448	Geoecology	
BOT 3313	Plant Taxonomy	
BOT 4433	Field Botany: California Plant Diversity	
BRAE 3345	Photogrammetry and Remote Sensing with GIS Applications	
BRAE/NR 3349	Water for a Sustainable Society	
BRAE 4447	Advanced Surveying with GIS Applications	
EIM/NR 4480	Leadership Practice	
NR 2203	Resource Law Enforcement	
NR 3306	Natural Resource Ecology and Habitat Management	
NR 3312	Technology of Wildland Fire Management	
NR 3340	Wildland Fire Management	
NR/CRP 4404	Environmental Law	
NR 4418	Applied Geographic Information System	
SS 2221	Soil Health and Plant Nutrition	
SS 3321	Soil Morphology	
SS/NR 4431	Spatial Data Analysis and Environmental Mapping	
SS 4440	Forest and Range Soils	
SS 4444	Soil Judging	
Total Units		22

¹ Approved electives may need to be at the 3000-4000 level to ensure completion of the required minimum of 40 units of upper-division courses.

² Courses taken to meet a major course requirement cannot be double-counted in the concentration.

Water Science

Code	Title	Units
REQUIRED COURSES		
ERSC 3303	Soil Erosion and Water Conservation	3
NR 4418	Applied Geographic Information System	2
SS 3321	Soil Morphology	4
or SS 4431	Spatial Data Analysis and Environmental Mapping	
Approved Electives		
Select from the following: ^{1,2}		13
AG 4452	Leadership Seminar on Issues Affecting California Agriculture, Food Systems, and Natural Resources	
BRAE 3340	Irrigation Water Management	
BRAE 3345	Photogrammetry and Remote Sensing with GIS Applications	

BRAE/NR 3349	Water for a Sustainable Society
CHEM 1122	Fundamentals of Chemical Reactivity
EIM/NR 4480	Leadership Practice
MATH 1265	Calculus for Data Science II
NR 4400	Special Problems for Advanced Undergraduates
NR/CRP 4408	Water Resource Law and Policy
NR 4422	Stream Measurements and Water Quality Monitoring
PHYS 1121	College Physics I
PHYS 1123	College Physics II
SS/NR 4421	Wetlands
SS/NR 4431	Spatial Data Analysis and Environmental Mapping
SS 4440	Forest and Range Soils
STAT 3520	Statistics II

Total Units
22
¹ Approved electives may need to be at the 3000-4000 level to ensure completion of the required minimum of 40 units of upper-division courses.

² Courses taken to meet a major course requirement cannot be double-counted in the concentration.

Wildland Fire

Code	Title	Units
REQUIRED COURSES		
NR 2204	Wildland Fire Control	3
NR 2350	Urban Forestry	3
NR 3340	Wildland Fire Management	2

Approved Electives

Select from the following: ^{1,2}		14
BOT 3326	Plant Ecology	
CRP 1212	Introduction to City Planning	
CRP 4458	Hazard Mitigation Planning and Resilient Design	
ES 4406	Indigenous Peoples, International Law, and Policy	
KINE 1181	Responding to Emergencies: Comprehensive First Aid, CPR, AED	
NR 2200	Special Problems for Undergraduates	
NR 2203	Resource Law Enforcement	
NR 3312	Technology of Wildland Fire Management	
NR 3339	Internship in Natural Resources and Environmental Sciences	
NR 4400	Special Problems for Advanced Undergraduates	
NR/CRP 4404	Environmental Law	
NR/CRP 4408	Water Resource Law and Policy	
NR 4418	Applied Geographic Information System	
SS 3321	Soil Morphology	
SS 4440	Forest and Range Soils	

Total Units
22
¹ Approved electives may need to be at the 3000-4000 level to ensure completion of the required minimum of 40 units of upper-division courses.

² Courses taken to meet a major course requirement cannot be double-counted in the concentration.

General Education (GE) Requirements

- 43 units required, 16 of which are specified in Major and/or Support.
- If any of the remaining 27 Units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.
- See the complete GE course listing (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>).

- A grade of C- or better is required in one course in each of the following GE Areas: 1A (English Composition), 1B (Critical Thinking), 1C (Oral Communication), and 2 (Mathematics and Quantitative Reasoning).

Lower-Division General Education

Area 1		English Communication and Critical Thinking	
1A	Written Communication		3
1B	Critical Thinking		3
1C	Oral Communication		3
Area 2		Mathematics and Quantitative Reasoning	
2	Mathematics and Quantitative Reasoning (3 units in Support) ¹		0
Area 3		Arts and Humanities	
3A	Arts		3
3B	Humanities: Literature, Philosophy, Languages other than English		3
Area 4		Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	
4A	American Institutions (Title 5, Section 40404 Requirement)		3
4B	Social and Behavioral Sciences (3 units in Support) ¹		0
Area 5		Physical and Life Sciences	
5A	Physical Sciences (3 units in Support) ¹		0
5B	Life Sciences (3 units in Support) ¹		0
5C	Laboratory (may be embedded in a 5A or 5B course) (1 units in Support) ¹		0
Area 6		Ethnic Studies	
6	Ethnic Studies		3

Upper-Division General Education

Upper-Division 2/5	Mathematics and Quantitative Reasoning or Physical and Life Sciences	3
Upper-Division 3	Arts and Humanities	3
Upper-Division 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.) (3 units in Major) ¹	0

Total Units		27
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¹ Required in Major or Support; also satisfies General Education (GE) requirement.