

# Natural Resources

Degree: A.S. - Natural Resources  
 Certificate: Natural Resources

Area: Technical Education  
 Dean: Gabriel Meehan  
 Phone: (916) 484-8354  
 Counseling: (916) 484-8572

The Natural Resource Program offers an AS Degree and a certificate in Natural Resources.

Natural Resources Management is broadly defined as the art, science and business of managing, conserving and preserving non-renewable and renewable natural resources such as air, water, land and their biological resources for the benefit of present and future generations.

Today's natural resource technicians and professionals need a strong foundation in ecological and natural resource science as well as specific technical skills related to natural resource management. The Natural Resource curriculum provides this broad foundation for a wide range of career choices.

The AS Degree and the certificate are designed to train graduates for direct entry into jobs involving extensive fieldwork with State, Federal or Local Agencies as well as the private sector. Students completing the AS Degree can choose to continue their education towards degrees in wildlife biology, forestry, natural resource management or related disciplines.

The Natural Resources 20 unit Core Requirement serves both the degree major and certificate program. The degree major has an additional 18-21 unit concentration requirement in such areas as biological science, physical science, technical writing, statistics and computer information science.

The Natural Resources Department additionally offers the general education student coursework that prepares them for a greater appreciation and understanding of our natural resources and current human threats to those resources.

## Career Opportunities

There are entry-level technician and professional opportunities with private lumber and resource managing companies; city, state and national park systems and other state and federal resource agencies such as The California Department of Fish and Game, The California Department of Forestry and Fire Protection, the United States Forest Service, United States Fish and Wildlife Service, and the United States Bureau of Reclamation.

## Requirements for Degree Major: 38-41 units

### Core Requirements: 20 Units

NATR 300	3
NATR 302	3
NATR 304	3
NATR 310	4
or NATR 311, 312, 313, 314	
NATR 320	3
NATR 330	4

### Concentration Requirements: 18-22 Units

BIOL 310	4
BIOL 305	4
GEOG 300 or GEOG 300	3
Statistics 301	3
ENGWR 344	1
and one of the following:	
1) CISC 300, CISA 300 or CISA 301, and CISA 310	3
or	
2) GEOG 330, 332, and 333	7

### Recommended Electives:

NATR 332, 340, 342; GEOG 306; GEOG 305, 342, 345; BIOL 320, 322, 330, 352, 370, ; ANTH 333

### Requirements for Certificate: 20 Units

NATR 300	3
NATR 302	3
NATR 304	3
NATR 310	4
or NATR 311, 312, 313, 314	
NATR 320	3
NATR 330	4

### General Education Graduation Requirements:

Students must also complete the general education graduation requirements for an A.S. degree. See graduation requirements.

Most Natural Resource courses are accepted for credit at CSU and several are accepted for credit at UC. The Natural Resource core courses 300, 302, 304, 320 satisfy the AA/AS area 3A Natural Science Requirement.

### **NATR 294 Topics in Natural Resources .5-5 Units**

Formerly: NATR 93

Prerequisite: To be determined for each topic.

Advisory: ENGRD 116 or ESLR 320.

Course Not Transferable UC or CSU

Hours: 9-90 hours LEC and/or 27-270 hours LAB

Topics in natural resources management will be examined through various course offerings designed to cover field study activities and subjects relevant to natural resources and forestry not covered by regular catalog offerings. Topics and field study locations vary. Course content and unit credit to be determined by instructional area. Course topics may include advanced subjects related to wildlife, fisheries, conservation biology, forest resources and management, restoration ecology or aquatic ecology. Field trips required. This course may be taken four times.

### **NATR 300 Introduction to Natural Resource Management 3 Units**

Formerly: NATR 1

Prerequisite: None

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course is an overview of ecosystems and natural resource management. It considers non-renewable and renewable natural resources such as water, land, soils, air, wildlife and their vegetative communities. Additionally, this course provides a greater appreciation and understanding of the field of natural resource management, current human threats, and the protection and maintenance of natural resource systems. Field trips are required. AA/AS area A.

### **NATR 302 Introduction to Wildlife Biology 3 Units**

Formerly: NATR 3

Prerequisite: None

Course Transferable to CSU

Hours: 36 hours LEC; 54 hours LAB

This course is an introduction to Wildlife Biology and the basic principles and techniques related to the practice of Wildlife Management. Emphasis is based on ecological principles of populations and communities as they relate to the interdependence of wildlife and human populations. This course includes the discussion of the social, political and biological implications of Wildlife Management. Additionally, this course includes habitat and population sampling, radio telemetry and the development of a wildlife management plan. Field trips are required. AA/AS area A.

### **NATR 304 Introduction to Forestry 3 Units**

Formerly: NATR 5

Prerequisite: None

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers basic biological and physical science concepts important to a general understanding in forestry. Topics include forest history, forests of the United States, general tree taxonomy, forest ecology, soils, silvics, insects and diseases of forest trees, role of fire in forest management, forest measurements, multiple use management, forest issues and policies. Field trips are required. AA/AS area 3A.

### **NATR 306 Introduction to Range Management 3 Units**

Formerly: NATR 14

Prerequisite: None

Course Transferable to CSU

Hours: 36 hours LEC; 54 hours LAB

This course examines the historical developments of range management and theory and application of grazing strategies. This course focuses on the effects of grazing on range ecosystems, the taxonomy and physiology of range plants, ruminant nutrition and physiology. In addition, sampling techniques of field vegetation, the use of fire and other methods for range conversion and maintenance are explored. Field trips are required.

### **NATR 310 Natural Resource Measurements 4 Units**

Formerly: NATR 4

Prerequisite: None

Course Transferable to CSU

Hours: 36 hours LEC; 108 hours LAB

This course provides basic natural resource measurement and survey skills. Included in this course are elementary surveying, public land survey, distance and direction measurements, topographic map reading and stream flow measurements. This course will also focus on forest sampling techniques such as transects and quadrates. Also included are the fundamental wildlife sampling techniques as well as Global Positioning Systems (GPS) and Geographic Information Systems (GIS). Field trips are required.

### **NATR 311 Natural Resource Measurements-Land Surveying Methods 1 Unit**

Formerly: NATR 4A

Prerequisite: None

Course Transferable to CSU

Hours: 9 hours LEC; 27 hours LAB

This course provides basic natural resource land survey skills. Included in this course are elementary surveying, public land survey, distance and direction measurements, and topographic map reading. Field trips are required.

### **NATR 312 Natural Resource Measurements-Field Methods and Study Design 1 Unit**

Formerly: NATR 4B

Prerequisite: None

Course Transferable to CSU

Hours: 9 hours LEC; 27 hours LAB

This course provides basic statistics and study design as well as fundamental wildlife sampling techniques and an introduction to field applications of Global Positioning Systems (GPS) and Geographic Information Systems (GIS). Field trips are required.

### **NATR 313 Natural Resource Measurements-Vegetation Analysis and Forest Sampling 1 Unit**

Formerly: NATR 4C

Prerequisite: None

Course Transferable to CSU

Hours: 9 hours LEC; 27 hours LAB

This course provides basic forest and vegetation sampling skills. Included in this are forest sampling techniques such as tree heights, diameters, volume, and age. Vegetation sampling techniques such as quantitative and semi-quantitative analysis, and single species surveys will be covered. Field trips are required.

### **NATR 314 Natural Resource Measurements-Aquatic Resource Sampling 1 Unit**

Formerly: NATR 4D

Prerequisite: None

Course Transferable to CSU

Hours: 9 hours LEC; 27 hours LAB

This course provides basic aquatic resource sampling skills. Included in this course are stream flow measurements and water quality sampling. Sampling techniques for fisheries and other aquatic organisms will also be addressed. Field trips are required.

### **NATR 320 Principles of Ecology 3 Units**

Formerly: NATR 2

Prerequisite: None

Course Transferable to UC/CSU

Hours: 36 hours LEC; 54 hours LAB

This course covers basic principles of ecology, including the physical and biological factors of different environments in relation to the distribution of plants and animals. Emphasis will be on the management of ecosystems using ecological principles and the understanding of current ecological issues. Field trips are required. AA/AS area A.

**NATR 325 Black Bear Ecology and Management in California 1 Unit**

Formerly: NATR 10

Prerequisite: None

Course Transferable to CSU

Hours: 10 hours LEC; 36 hours LAB

This course will explore the natural history, habitat and management of the Black Bear. Topics include the distribution, abundance, physiology, reproduction, behavior, and management of black bears. An exciting field trip into black bear country is required to allow students to identify bear sign and appreciate the natural habitat of this remarkable animal.

**NATR 326 Analysis of a Predator-The Mountain Lion 1 Unit**

Formerly: NATR 9

Prerequisite: None

Course Transferable to CSU

Hours: 15 hours LEC; 9 hours LAB

This course will explore the natural history and political history of the Mountain Lion. Topics include the distribution and abundance of mountain lions in California and throughout western North America; the important ecological role of this predator; problems associated with mountain lions, and the legal status of mountain lions in California. An exciting field trip into mountain lion country is required to allow students to identify lion sign and appreciate the natural habitat of this magnificent predator.

**NATR 330 Identification of Native Trees and Shrubs 4 Units**

Formerly: NATR 6

Prerequisite: None

Course Transferable to CSU

Hours: 54 hours LEC; 54 hours LAB

This course will focus on the identification of native trees and shrubs of California by means of plant keys. In addition, this course will also include sight identification of some grasses, and other herbaceous and wetland plants. The ecology of vegetative communities and the natural history of native plants will be explored. A collection of at least seventy-five plant specimens is required. Field trips are required.

**NATR 332 Wildflowers of the Sacramento Region 4 Units**

Formerly: NATR 8

Prerequisite: None

Course Transferable to UC/CSU

Hours: 54 hours LEC; 54 hours LAB

This course focuses on the wildflowers of the Sacramento Region. The identification, distribution, and interrelationships of herbaceous plants in their natural environment, ecological principles, and representative plant communities are examined. Special emphasis will be given to the study of plant families in our local grasslands, vernal pools, oak woodlands and foothills, and the use of taxonomic keys. AA/AS area A

**NATR 340 John Muir "Conservationist" 2 Units**

Formerly: NATR 7

Prerequisite: None

Course Transferable to CSU

Hours: 36 hours LEC

This course covers the life, writings and philosophy of one of the founders of the American Conservation Movement. This course focuses on John Muir's significant contributions to the formation of the National Park System. This course is recommended to Elementary and Secondary Educators and those interested in natural resources, conservation and California history. Some class sessions will be held at the Muir National Historical Site in Martinez, the Muir Redwoods and Yosemite National Park. Field trips are required.

**NATR 342 Forest Resource Protection 4 Units**

Formerly: NATR 24

Prerequisite: None

Course Transferable to CSU

Hours: 54 hours LEC; 54 hours LAB

This course examines impacts to forest resources by destructive agents such as plant diseases, insects, fire, animals, and weather. Identification of causal agents and principles of forest protection are covered along with practical management concepts. Field trips are required.

**NATR 498 Work Experience in Natural Resources 2-16 Units**

Formerly: NATR 48

Prerequisite: None

Course Transferable to CSU

Hours: 18 hours LEC; 150 hours LAB

This course is a cooperative effort between the college and a federal, state, local, private or nonprofit organizations involved in natural resource planning, management or public information. Internship sponsors assist students in acquisition of skills and the application of knowledge learned in the classroom. In addition to applied job related skills, students will be provided general employment training and skills such as: resume writing, job applications, taking job interviews, how to look for jobs and develop job performance objectives.