

CATALOG INFORMATION

Dept and Nbr: NRM 111            Title: ORIENT ENVIRON RES MGT  
Full Title: Orientation to Environmental Resource Management  
Last Reviewed: 10/8/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable  
Grading:            Grade or P/NP  
Repeatability:    00 - Two Repeats if Grade was D, F, NC, or NP  
Also Listed As:  
Formerly:

**Catalog Description:**  
Orientation to principles and practices of environmental resource management in wildland areas. Each lecture is supported by a field experience. Field trips are mandatory.

**Prerequisites/Corequisites:**

**Recommended Preparation:**  
Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:**

**Schedule of Classes Information:**  
Description: Orientation to principles and practices of environmental resource management in wildland areas. Each lecture is supported by a field experience. Field trips are mandatory. (Grade or P/NP)  
Prerequisites/Corequisites:  
Recommended: Eligibility for ENGL 100 or ESL 100  
Limits on Enrollment:  
Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU GE:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>IGETC:</b>	<b>Transfer Area</b>	<b>Effective:</b>	<b>Inactive:</b>
<b>CSU Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>
<b>UC Transfer:</b>		<b>Effective:</b>	<b>Inactive:</b>

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Identify and apply the principles and practices of environmental resource management in wildland areas.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Evaluate the principles of multiple-use management and ecosystem-based management sufficiently to be able to discuss their relationship to jobs in multiple industries in different natural resource settings.
2. Interpret the principles of wildlife and habitat management that may impact land use decisions.
3. Critique fishery management practices and the factors that influence management decisions and methods.
4. Measure the natural resources of an area and synthesize them into the design of a natural resource facility.
5. Determine the nature of watershed management practices that maintain a good watershed condition.
6. Conclude how proper use of the hand compass, topographic maps and GPS devices can be used for wildland data collection for management activities.
7. Justify the principles of silviculture and timber management as they relate to sustainable timber production and when this is compatible or in conflict with wildland activities.
8. Recommend how and when the importance of managing rangelands for livestock production can be compatible with or necessary for wildland activities.
9. Determine how fire and pests can be controlled to maintain healthy ecosystem conditions.
10. Appraise how natural resources management practices influence the processes of soil erosion.
11. Discuss, decide and defend the methods that can be used to restore over utilized rangelands and commercially harvested forestlands.

### **Topics and Scope:**

## I. Introduction

- A. Definitions
- B. Relationship of multiple-use management to ecosystem-based management
- C. Career opportunities in natural resource management
  - 1. Qualifications
  - 2. Education
  - 3. First Aid (for American Red Cross Certification)
  - 4. Cardiopulmonary Resuscitation (for American Red Cross Certification)
  - 5. Chainsaw operation and safety

## II. Wildlife Management

- A. Ecological background for wildlife management
- B. Population management practices
- C. Habitat management and enhancement practices
  - 1. Principles
  - 2. Applications
    - i. Wildlife Cameras
    - ii. Bat boxes
    - iii. Anadromous fisheries
- D. Management of endangered wildlife species, including legal restrictions
- E. Fishery management

## III. Watershed and Water Management Practices

- A. Definitions
- B. Hydrologic cycle
- C. Watershed management practices
  - 1. Maintaining watershed condition
  - 2. Increasing water yields
  - 3. Rehabilitation activities
- D. Water management practices
  - 1. Developing water supplies
  - 2. Conserving water supplies
  - 3. Water quality
- E. Effects of watershed management practices on water resources
  - 1. Environmental effects
  - 2. Water yield increases
  - 3. Riparian ecosystems

## IV. Map Reading and Compass Use and GIS and Smartphone Apps

- A. Map scale
- B. Contour lines and intervals
- C. Longitude and latitude grids
  - 1. Degrees
  - 2. Minutes
  - 3. Seconds
- D. Range and township grids
- E. Topographic maps
  - 1. Contour lines and intervals
  - 2. Symbols
  - 3. Color system
- F. Mechanical/magnetic principles of the hand compass
- G. Route finding from a known point
- H. Use of GPS in Forestry

## V. Timber Management Practices

- A. Silviculture
  - 1. Even and Uneven Aged Management
  - 2. Intermediate cuttings
  - 3. Other cultural treatments
  - 4. Natural and artificial reproduction
- B. Timber Management
  - 1. Species composition
  - 2. Stand structure
  - 3. Regulation (CEQA and Forest Practices Rules, etc.)
  - 4. Rotation age
  - 5. Protection
- C. Harvesting of timber
  - 1. Felling and bucking
  - 2. Skidding, loading, and transportation
  - 3. Environmental considerations
- D. Rehabilitation methods on forestlands
- VI. Rangeland Management
  - A. Proper use of rangelands
  - B. Grazing management
  - C. Rangeland improvement
  - D. Livestock improvement
- VII. Fire Control and Pest Management
  - A. Fire
    - 1. Prevention
    - 2. Fire-danger rating
    - 3. Control practices
    - 4. Prescribed burning
    - 5. Prescribed natural fire
  - B. Insect pests and diseases
    - 1. Classification
    - 2. Control practices
  - C. Integrated pest management
  - D. Ecosystem health
- VIII. Soil Conservation
  - A. Processes of erosion
  - B. Erosion control methods
  - C. Prevention of soil loss
- IX. Sustainable Forestry Practices
  - A. Restoration of Overharvested Forest Lands
  - B. Sustainable forest management (growth and yield)
- X. Integrated Natural Resources Management
  - A. Importance of alternatives
  - B. Estimation of natural resources (to people, wildlife and ecological functions.)
  - C. Benefits and costs
  - D. Decision making
  - E. Cumulative impacts
  - F. Multiple use management

All topics are covered in the lecture and lab portions of the course

**Assignment:**

### Lecture-Related Assignments:

1. Reading assignments that will average 15 pages per week
2. Write a management summary for a piece of land (Forest management, range management, parks and Rec) (1–2 pages)
3. Final project: Written reflection and analysis regarding personal experience in the course (5-10 pages)
4. Midterm and final exam

### Lecture- and Lab-Related Assignments:

1. Field demonstration and written exam on tools/equipment operation and safety

### Lab-Related Assignments:

1. Cardiopulmonary resuscitation and first aid certification activities and exams
2. Weekly field experiences based on lectures
3. Field log for each field experience

## Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Field log; final written project; interpretation project; management summary.

Writing  
20 - 30%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Field log, land management summary, CPR and First Aid Certification

Problem solving  
10 - 20%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

CPR and First Aid Certification; field demonstrations.

Skill Demonstrations  
20 - 30%

**Exams:** All forms of formal testing, other than skill performance exams.

Midterm, Exams, and Final Exam: Multiple choice, True/false, Matching items, Completion, Short essay questions; CPR and First Aid exam

Exams  
30 - 40%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation.

Other Category  
0 - 10%

## Representative Textbooks and Materials:

Natural Resources Management Practices: A Primer. Ffolliott, Peter and Bojorquez-Tapia, Luis and Hernandez-Narvaez, Mariano. Iowa State University Press: 2001 (classic)

First Aid/CPR/AED Participants Manual. American Red Cross. current year.

U.S. Forest Service, Chainsaw and Fire Tool Maintenance and Operation Manual. current year (Government documents are updated as available. Many are classics in the field.)

Standard First Aid, CPR, and AED. 7th ed. American Academy of Orthopaedic Surgeons and American College of Emergency Physicians and Thygeson, Alton. Jones & Bartlett Learning. 2016

Instructor prepared materials