NRM 91 Course Outline as of Fall 2025

CATALOG INFORMATION

Dept and Nbr: NRM 91 Title: RANGELAND MANAGEMENT
Full Title: Rangeland Management in a Changing Climate
Last Reviewed: 11/25/2024

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	8	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:	ANSC 91
Formerly:	

Catalog Description:
In this course, students will learn basic principles of range management as they apply to various regions and vegetative types on California rangelands. This course examines the relationship of range management practices to livestock production, wildlife management, forestry, hydrology, and other land uses. Multiple field trips are required.

Prerequisites/Corequisites:

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: In this course, students will learn basic principles of range management as they apply to various regions and vegetative types on California rangelands. This course examines the relationship of range management practices to livestock production, wildlife management, forestry, hydrology, and other land uses. Multiple field trips are required. (Grade or P/NP)
Prerequisites/Corequisites:

Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Transferable	Effective:	Spring 2006	Inactive:
UC Transfer:		Effective:		Inactive:

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. Explain and apply basic principles of range management regarding various regions and vegetative types.

2. Identify management plan strategies for rangeland based on varying land use goals including: livestock production, wildlife management, forestry, fire mitigation, recreation, and other land uses.
3. Analyze basic ecological factors affecting rangelands including soil health and residual dry matter.

Objectives:
At the conclusion of this course, the student should be able to:
1. Discuss the principles of rangeland management.
2. Differentiate among the major rangeland types.
3. Recognize the basic morphology and physiology of rangelands.
4. Analyze basic ecological factors affecting rangelands.
5. Apply concepts of range plant physiology to range management.
6. Discuss the principles and options for wildlife management and utilization on rangelands.
7. Demonstrate proficiency in range inventory and assessment methods.
8. Establish management practices based on various goals of rangeland management.
9. Determine options for managing and improving California's rangelands.

Topics and Scope:

I. Introduction, Definition of Rangelands, Products and Uses
   A. Importance of rangeland worldwide
   B. Importance of rangeland to humans

- C. Environmental importance
- D. History of range management
- E. Goals for rangeland managment

II. Rangeland Physical Characteristics

III. Rangeland Types
- A. Major types
  1. Grasslands
  2. Desert shrublands
  3. Savanna woodlands
  4. Forests
  5. Tundra
- B. U.S. types
- C. California Range

IV. Range Ecology
- A. Rangeland ecosystem components and functions
- B. Effects of climate
- C. Effects of geography

V. Issues in Range Management
- A. Climate change
- B. Public perception
  1. Wildlife management
  2. Fire mitigation
  3. Effects on policy
  4. Grazing
- C. Land development and fragmentation
- D. Regulations
- E. Wildlife livestock interactions
- F. Wild horses and donkeys

VI. Range Plant Physiology
- A. Basic concepts
- B. Plant morphology and growth
- C. Secondary plant characteristics
- D. Range management principles

VII. Grazing Management
- A. Species selection
- B. Grazing plans
- C. Grazing systems
  1. Rotational grazing
  2. Holistic management
  3. Regenerative
  4. Continuous
- D. Impacts of grazing
  1. Benefits
  2. Negative effects
- E. Grazing Models
  1. Prescribed grazing
  2. Grazing for production
  3. Ecosystems services
     a. Perennial grazing
     b. Vernal pools
     c. Fire mitigation
- F. Stocking rate

G. Evaluating grazing systems
VIII. Range Inventory and Monitoring
A. Vegetation mapping
B. Residual dry matter
C. Species identification
1. Grasses
2. Invasive species
3. Trees
4. Shrubs
IX. Management in a Fire Ecology
A. Considerations
1. Wildland Urban Interface
2. History
3. Issues with management
4. Land ecology
B. Management practices
1. Mastication
2. Prescribed burning
3. Grazing
4. Post fire management
X. Manipulation of Range Vegetation
A. Rangeland problems in Western United States
B. Control of unwanted plants
C. Economic considerations
D. Vegetation manipulation
1. Seeding
2. Fertilization
a. Fire
b. Chemical
3. Mechanical

All topics are covered in both the lecture and lab parts of the course.

Assignment:

Lecture-Related Assignments:
1. Read 20-30 pages per week
2. Evaluate assigned location and develop an inventory, assessment, and management plan (5-10 pages; graded 30% writing; 70% problem solving)
3. Quizzes (2-4); midterm; final exam

Lab-Related Assignments:
1. Labs (may be conducted at Shone Farm or involve field trips (3-7) to various pasture and rangeland sites)
a. Rangeland plant sample collection and identification
b. Inventory and monitoring in the field
c. Set up and evaluate stocking rates
d. Evaluate various grazing systems
e. Assessment of plant progression at a burn site
f. Inventory of a rangeland parcel
2. Lab reports (graded 30% writing; 70% problem solving)

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.

Lab reports, Management plan	Writing 20 - 30%

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

Lab reports, Management plan	Problem solving 30 - 40%

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

None	Skill Demonstrations 0 - 0%

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

Quizzes and exams	Exams 30 - 40%

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

Class participation, field trip participation	Other Category 0 - 10%

Representative Textbooks and Materials:
Grass, Soil, Hope: A Journey through Carbon Country. White, Courtney. Chelsea Green Pub Co. 2014. (classic).
Grasses, Sedges, Rushes: An Identification Guide. Brown, Lauren and Elliman Ted. Yale University Press. 2020. (classic).
For the Love of Soil: Strategies to Regenerate Our Food Production Systems. Masters, Nicole. Printable Reality. 2019. (classic).
Range Management: Principles and Practices. 6th ed. Holechek, Jerry and Pieper, Rex and Herbel, Carlton. Pearson. 2010. (classic).
Rangeland Health: New Methods to Classify, Inventory, and Monitor Rangelands. National Academy Press. 1994. (classic).
Instructor prepared materials