NRM 87 Course Outline as of Fall 2002

CATALOG INFORMATION

Dept and Nbr: NRM 87 Title: GIS APPLIC IN NAT RESRC Full Title: Geographic Information Systems Appl in Natural Resources Last Reviewed: 12/12/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	3	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

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:

An introduction to the use of Geographic Information Systems (GIS) to analyze and interpret natural resources data, and to solve common conservation problems. Includes a basic introduction to arc view GIS, analysis of habitat loss for endangered species, evaluation of mineral development impacts, watershed analysis, assessing data quality, and environmental analysis of a proposed timber sale.

Prerequisites/Corequisites:

Recommended Preparation:

APTECH 54A (GIS) and working knowledge of IBM (PC) computer systems.

Limits on Enrollment:

Schedule of Classes Information:

Description: An introduction to the use of Geographic Information Systems (GIS) to analyze and interpret natural resources data, and to solve common conservation problems. (Grade or P/NP) Prerequisites/Corequisites:

Recommended: APTECH 54A (GIS) and working knowledge of IBM (PC) computer systems.

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area			Effective: Effective:	Inactive: Inactive:
IGETC:	Transfer Area			Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 2002	Inactive:	
UC Transfer:		Effective:		Inactive:	

CID:

Certificate/Major Applicable:

Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:

Upon completion of this course, students will be able to:

- 1. Demonstrate the use of a basic GIS operating system.
- 2. Calculate acreages and analyze changes in wildland resources over time and space using GIS data.
- 3. Identify potential mining development sites from spatial data.
- 4. Classify soils based on their erosion potential.
- 5. Determine and discuss the effects of road density on competing watershed values.
- 6. Display a shaded relief map, and identify specific data values contained therein.
- 7. Prepare a timber sale database, and define those elements affecting old growth timber stands.

Topics and Scope:

- I. Introduction to Geographic Information Systems
 - A. Basic terminology and computer operation
 - B. Uses and objectives of spatial data systems
 - C. Opening an arc view project
 - D. Arc view documents and thematic planning
 - E. Identifying and selecting data features
- II. Analysis of Habitat Loss for Endangered Species
 - A. Use symbology and labels to map animal recovery zones
 - B. Calculate and map species density for specific areas
 - C. Summarize and chart changes in wildlands
- III. Evaluation of Mineral Potential and Development Impacts
 - A. Identification and labeling of protected areas
 - B. Use of proximity analysis in selecting mine site in relationship

to distance from protected areas

- C. Modification of mine location based on competing resource impacts
- IV. Watershed Analysis
 - A. Use of spatial data to identify watershed boundaries
 - B. Determination of total road length and road density within watershed boundaries
 - C. Thematically analyze road networks that threaten stream habitats
- V. Assessing Data Quality
 - A. Display and use of shaded relief images of topographic features
 - B. Display and use of spot images to verify mountain roads
 - C. Use of orthophotos to assess forest stand data
- VI. Environmental Analysis of Proposed Timber Sale
 - A. Display and analysis of proposed timber sale units occurring on steep slopes
 - B. Display and analysis of timber sale units based on proximity to perennial and intermittent streams
 - C. Classification of timber sale units based on their environmental risk

Assignment:

- 1. Operate a GIS-based computer system using
- ArcView 1.0 through classroom demonstration.
- 2. Read assignments totaling 25 pages per week from text.
- 3. Classroom projects developing natural resources maps based on spatial and temporal data sets.
- 4. Classroom projects developing natural resource attribute tabular data from GIS database.
- 5. Classroom projects altering resource development plans based on environmentally limiting factors.

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.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

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

Completion of a map and a flow chart.

Writing 0 - 0%	



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

Class performances, Performance exams, computer classroom projects

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

Multiple choice, True/false, Matching items, Completion

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

Project proposal

Skill Demonstrations 40 - 60%



Other Category 5 - 20%

Representative Textbooks and Materials:

GEOGRAPHIC INFORMATION SYSTEMS AND ENVIRONMENTAL MODELING, by Keith C.

Clarke, Bradley O. Parks, Brad E. Parks, Michael P. Crane, Prentice Hall College Division, 1 Edition, July 5, 2001

MANAGING NATURAL RESOURCES WITH GIS: Laura Lang, Environmental Systems Research Institute, Inc. 1998