CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA   ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT

1.   Catalog Description of the Course.

ESRM 328. Introduction to Geographic Information Systems (3)
Two hours of lecture and one three-hour lab per week. Lab fee required.
Prerequisites: ESRM 100 or consent of the instructor

Introduction to fundamental concepts and techniques of geographic information systems, including the collection, manipulation, analysis, interpretation, display, and communication of spatial information for environmental decision making.

2.   Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	__2__	__2__	__24__ (limit of 15 in 02/03)
Seminar	_____	_____	_____
Laboratory	__1__	__3__	__12__
Activity	_____	_____	_____

3.   Justification and Learning Objectives for the Course.

- Introduce students to geographic information system concepts and applications; and
- Demonstrate how spatial information is used in environmental planning and decision making.

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

- Collect, manipulate, analyze, interpret, display, and communicate spatial information in a manner understandable to a target audience;
- Utilize GIS software to perform common tasks and analyses;
- Recognize the role of GIS in environmental management and conservation and the relationship between GIS and other spatial technologies (e.g. GPS, remote sensing); and
- Identify sources of error in mapping and propose appropriate courses of action to minimize these errors.

This course is required for all ESRM majors.

4.   Is this a General Education Course   NO
If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5.   Course Content in Outline Form.

Overview of the labs and ArcView
What is a GIS?: Definitions and History, Information Sources
GIS's Roots in Cartography
    a. Basics and Scale
    b. Map Projections & Coordinates
Maps as Numbers
    a. Encoding Attributes

b. Encoding Geometry
Getting the Map Into the Computer
    a. Existing Data
    b. Digitizing, Scanning, Field Data
What is Where? DBMS Search and Retreival
Why is it There? Spatial Analysis: Descriptive Statistics Review
Why is it There? Spatial Analysis: Analysis of Maps
Making Maps With GIS
    a. Parts of the Map
    b. Map Types & Design
How to Pick a GIS
    a. Software Functionality
    b. The Big Eight
GIS In Action: Case Studies
The Future of GIS

6.   References.

The ESRI Guide to GIS Analysis, Volume 1: Geographic Patterns and Relationships
ESRI Press (2001)

Geographic Information Systems and Science
Paul A. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind. John Wiley & Sons (2001)

Concepts and Techniques in Geographic Information Systems
C. P. Lo, Albert K. W. Yeung. Prentice-Hall (2002)

Getting Started with Geographic Information Systems (3rd Edition)
Keith C. Clarke. Prentice-Hall (2002)

7.   List Faculty Qualified to Teach This Course.

Professor Mark Zacharias

8.   Frequency.
    a.   Projected semesters to be offered: Fall _____   Spring __X__   Summer _____

9.   New Resources Required.
    a.   GIS Software, plotters, digitizer, computers
    b.   Dedicated spatial science lab space (in development)

10. Consultation.
    N/A

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

____Mark Zacharias_____12/6/02_____
Proposer of Course   Date