

**NEW COURSE PROPOSAL**

**Courses must be submitted by November 5, 2007, to make the next catalog production**

DATE (*Change if modified*)

5 OCTOBER 2007 REV 12.13.07

PROGRAM AREA(S)

ESRM

**1. Catalog Description of the Course.** *[Follow accepted catalog format.]*

**Prefix(es)** (Add additional prefixes if cross-listed) **ESRM Course No. 428**

**Title: INTERMEDIATE GEOGRAPHIC INFORMATION SYSTEMS Units: 3**

Prerequisites ESRM 328

Corequisites

Consent of Instructor Required for Enrollment

**Description** (Do not use any symbols): **Study of concepts and techniques of geographic information systems, with special emphasis on environmental issues at multiple spatial scales.**

**Grading Scheme:**

A-F Grades

Credit/No Credit

Optional (Student Choice)

**Repeatability:**

Repeatable for a maximum of units

Total Completions Allowed

Multiple Enrollment in Same Semester

**Lab Fee Required:**

**Mode of Instruction/Components** (*Hours per Unit are defaulted.*)

	<b>Units</b>	<b>Hours per Unit</b>	<b>Benchmark Enrollment</b>	<b>Graded Component</b>	<b>CS &amp; HEGIS #</b> (Filled in by the Dean)
Lecture	<u>2</u>	<u>1</u>	<u>20</u>	<input checked="" type="checkbox"/>	_____
Seminar	_____	_____	_____	<input type="checkbox"/>	_____
Laboratory	<u>1</u>	<u>3</u>	<u>20</u>	<input checked="" type="checkbox"/>	_____
Activity	_____	_____	_____	<input type="checkbox"/>	_____
Field Studies	_____	_____	_____	<input type="checkbox"/>	_____
Indep Study	_____	_____	_____	<input type="checkbox"/>	_____
Other Blank	_____	_____	_____	<input type="checkbox"/>	_____

The following two lines will be filled out internally based on the Mode of Instruction data directly above.

2 hours lecture per week (*Use 2<sup>nd</sup> line only if necessary*)

3 hours laboratory per week

**Course Attributes:**

**General Education Categories:** All courses with GE categories notations (including deletions) must be processed at the GE website: <http://summit.csuci.edu/geapproval>. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

**A (English Language, Communication, Critical Thinking)**

A-1 Oral Communication

A-2 English Writing

A-3 Critical Thinking

**B (Mathematics, Sciences & Technology)**

B-1 Physical Sciences

B-2 Life Sciences – Biology

B-3 Mathematics – Mathematics and Applications

B-4 Computers and Information Technology

**C (Fine Arts, Literature, Languages & Cultures)**

C-1 Art

C-2 Literature Courses

C-3a Language

C-3b Multicultural

**D (Social Perspectives)**

**E (Human Psychological and Physiological Perspectives)**

**UDIGE/INTD Interdisciplinary**  
**Meets University Writing Requirement**  
**Meets University Language Requirement**

  
  

American Institutions, Title V Section 40404:  Government  US Constitution  US History  
Refer to website, Exec Order 405, for more information: <http://senate.csuci.edu/comm/curriculum/resources.htm>  
 Service Learning Course

**3. Justification and Requirements for the Course.** (Make a brief statement to justify the need for the course)

A. Justification: Environmental science, resource management and society in general are increasing demanding geospatial literacy. This course and associated prerequisites are designed to empower a broad range of CSUCI students with these important skills. More specifically, the professional use of geographic information systems is rapidly expanding into the job market, and has become a critical component of environmental science. ESRM 428 is designed to provide both theoretical and practical training to support these emerging needs. ESRM 328 (Intro. to GIS) is primarily an introduction to the concepts and skills (and therefore appropriate for non-ESRM students as well as students within the major). ESRM 428 will have a much greater emphasis upon conservation and resource management themes and tools, building geospatial literacy and fluency among the ESRM majors.

B. Degree Requirement:  Requirement for the Major/Minor **Note: Submit Program Modification if this course changes your program.**  
 Elective for the Major/Minor

**4. Learning Objectives.** (Bullets, will occur upon carriage return)

Upon completion of the course, the student will be able to:

- Produce specialized thematic maps using GIS software and hardware to communicate spatial concepts
- Handle core spatial data
- Interpret spatial metadata and identify gaps in published metadata applications
- Integrate raster and vector data models for analysis
- Develop hypotheses relating to spatial information, and apply scientific methods to problem solving
- Describe the role of GIS in society, providing examples of the many growing applications of this technology and science

**5. Course Content in Outline Form.** [Be as brief as possible, but use as much space as necessary]

- GIS in the workplace
- Figures of the Earth
- GIS Data: Geography Net, US Government
- Legacy data: ASCII & the coverage model
- Shapefiles, topology, the geodatabase
- GIS approaches to environmental issues
- GIS in interdisciplinary science
- Surrogate environmental data for GIS
- Raster vs. vector analysis
- Surface modeling with TIN's
- Mixed resolution maps and map accuracy
- GIS futures in science

I.

Does this course overlap a course offered in your academic program? YES  NO

If YES, what course(s) and provide a justification of the overlap?

Does this course overlap a course offered in another academic area? YES  NO

If YES, what course(s) and provide a justification of the overlap?

Signature of Academic Chair(s) of the other academic area(s) is required on the signature sheet below.

**6. Cross-listed Courses** (Please note each prefix in item No. 1)

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).  
Prefix for cross-listed discipline(s):

B. Department responsible for staffing: ESRM

7. **References.** [Provide 3 - 5 references on which this course is based and/or support it.]

- Longley, P.A., M.F. Goodchild, D.J. Maguire, and D.W. Rhind, 2005. Geographic Information Systems and Science. Second Edition. New York: Wiley.
- Clarke, K. C. (2003) *Getting Started with Geographic Information Systems*, Prentice Hall, Upper Saddle River, NJ. Fourth Edition.
- Convis, C.L. Jr. (ed.) 2003. Conservation Geography: Case Studies in GIS, Computer Mapping, and Activism. ESRI Press, Redlands, CA. 219 pp.

8. **List Faculty Qualified to Teach This Course.**

- Christopher Cogan

9. **Effective Date**

A. First semester offered: Fall 2008

10. **New Resources Required.** YES  NO

If YES, list the resources needed and obtain signatures from the appropriate programs/units on the sheet below.

A. Computer (data processing), audio visual, broadcasting needs, other equipment)  
no additional needs

B. Library needs  
Geodatabase server (on order)

C. Facility/space needs  
no additional needs

11. **Will this new course alter any degree, credential, certificate, or minor in your program?** YES  NO

**If, YES attach a program modification form for all programs affected.**

Catalog deadline for New Minors and Programs (including modifications): October 15, 2007, preceding year.

Catalog deadline for Course Proposals and Modifications: November 9, 2007, of preceding year.

Last day to submit any work to be considered for the academic year: April 15<sup>th</sup>.

Christopher Cogan  
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Proposer of Course

5 October 2007  
\_\_\_\_\_  
Date

# Approval Sheet

**Program/Course:**

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Service Learning Center Director		
	Signature	Date
Curriculum Chair		
	Signature	Date
Dean of Faculty		
	Signature	Date