GIS 40 Course Outline as of Fall 2010

CATALOG INFORMATION

Dept and Nbr: GIS 40 Title: INTRO TO GIS
Full Title: Introduction to Geographic Information Systems (GIS)
Last Reviewed: 2/24/2020

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	17.5	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 Only
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	GIS 50

Catalog Description:
The course introduces students to fundamental concepts of geographic information systems (GIS). Topics include elements of GIS, data structures and their management, introductory input and output functions and mapping possibilities. Hands-on exposure to GIS technology through the use of computers and current industry standard software is provided during the laboratory.

Prerequisites/Corequisites:

Recommended Preparation:
A working knowledge of PC campatible computer operations and the MS OFFICE suite of programs

Limits on Enrollment:

Schedule of Classes Information:
Description: The course introduces students to fundamental concepts of geographic information systems (GIS). Topics include: elements of GIS, data structures and their management, introductory input and output functions and mapping possibilities. Hands-on exposure to GIS technology through the use of computers and current industry standard software is provided

during the laboratory. (Grade Only)
Prerequisites/Corequisites:
Recommended: A working knowledge of PC campatible computer operations and the MS OFFICE suite of programs
Limits on Enrollment:
Transfer Credit: CSU;UC.
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 2009	Inactive:	
UC Transfer:	Transferable	Effective:	Fall 2009	Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon completion of this course, the student will be able to:
1. List the primary functions of a GIS.
2. Understand elementary spatial analysis of data.
3. Define image, geographic and database methods of representing data.
4. Describe the differences between CAD and GIS.
5. Use different types of graphic symbols.
6. List and identify different file structures and their advantages and disadvantages.
7. Describe data storage, editing and retrieval techniques used in a GIS.
8. Create a GIS using image, geographic and database information.

Topics and Scope:

Lectures will cover the following topics:
1) Introduction to GIS
   a) the purpose and scope of a GIS
   b) GIS data sources: image, geographic and database information
   c) GIS terminology
2. Spatial Analysis
   a) spatial awareness
   b) spatial elements
   c) geographic data collection
   d) population and sampling schemes
   e) making inferences from data
3. Maps as a Model of Geographic Data

a) map as a model
b) map scale and characteristics
c) map projections
d) thematic maps
e) cartographic process

4. Cartographic and GIS Data Structures
   a) terms
   b) computer file structures
   c) computer database structures for managing data
   d) graphic representation of entities and attributes
   e) GIS data models for multiple coverages
5. GIS Data Input
   a) input subsystems
   b) methods of input
   c) external databases
6. Data Storage and Editing
   a) storage of GIS Database
   b) simple analysis framework
   c) detecting and editing changes
   d) dealing with projection changes
   e) joining adjacent coverages
7. Elementary Spatial Analysis
   a) terms
   b) simple analysis framework
   c) defining objects based on their attributes
   d) working with higher level objects
   e) sample applications of these concepts
8. Spatial Arrangement
   a) point, area, and line arrangement
   b) point patterns
   c) linear patterns
   d) routing and allocation
   e) sample applications
9. GIS Design
   a) the need for GIS design
   b) the software engineering approach
   c) structured design model
   d) formal GIS design methodology
   e) verification and validation
10. GIS Output
   a) applications in different disciplines
   b) cartographic output
   c) map design controls
   d) nontraditional cartographic output
   e) non-cartographic output
   f) technology and GIS output

Assignment:

1. Read approximately one chapter of the textbook per week
2. Weekly lab assignments using GIS technology
3. Create GIS map

4. Midterms: 2
5. Final exam

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 are more appropriate for this course.	Writing 0 - 0%

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

Weekly lab assignments	Problem solving 30 - 50%

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

Create GIS map	Skill Demonstrations 30 - 50%

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

Two mid-terms, final exam, multiple choice, completion, true-false, short answer	Exams 20 - 30%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Fundamentals of Geographic Information Systems, John Wiley & Sons, Inc., NY. DeMers M.N. (2008)