GIS 51 Course Outline as of Fall 2009

CATALOG INFORMATION

Dept and Nbr: GIS 51 Title: INTERMEDIATE GIS
Full Title: Intermediate Geographic Information Systems (GIS)
Last Reviewed: 1/23/2023

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:	39 - Total 2 Times
Also Listed As:	
Formerly:	

Catalog Description:
This is an intermediate level course in the concepts of geographic information systems (GIS). Topics include elements of GIS, data structures and their management, intermediate 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:
Course Completion of GIS 40 (or GIS 50) OR Course Completion of APTECH 54A (or APTECH 54)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: This is an intermediate level course in the concepts of geographic information systems (GIS). Topics include elements of GIS, data structures and their management, intermediate 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: Course Completion of GIS 40 (or GIS 50) OR Course Completion of APTECH 54A (or APTECH 54)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Total 2 Times

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:		Effective:		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. Demonstrate and understanding of the structure and organization of the software package
2. Create a project using GIS software
3. Define and apply the relationship of geographic features and attribute data
4. Perform feature identification and classification
5. Perform query and analysis functions
6. Define and edit spatial relationships
7. Create a map layout
8. Integrate GIS with other software and technology
9. Utilize basic cartographic principles in map design and construction.
10. Repeating students will gain enhanced skills and proficiencies through learning and applying methodologies and tools from updated and upgraded versions of the software.

Topics and Scope:

Lectures will cover the following topics:
1. Identify source files
   a. Links to files
   b. How to change files in the project

2. Perform geocoding for geographic location

3. Perform selection by location for data analysis

4. Perform spatial joins of database information

5. Overlay analysis by:
   a. Proximity
   b. Spatial data processing
   c. Clip data demonstration
   d. Disolve data demonstration
   e. Append to data demonstration
   f. Demonstrate the Union function

6. Utilize GIS software features
   a. Create metadata
   b. Utilize Toolbox features

7. Produce map layouts
   a. Create reports
   b. Create graphs

8. Create and edit geodatabases

9. Create and edit data sources
   a. Import and edit other data formats
   b. CAD
   c. Interchange files
   d. Text and CSV files
   e. MS Access files

10. Perform intermediate level analysis functions on data
   a. Queries
   b. Attribute joins
   c. Spatial joins
   d. Edit attributes
   e. Create edit centroids

11. Perform intermediate level statistical analysis

12. Create summary tables: perform spatial adjustment & georeferencing

13. GIS design
   a. Need for GIS design
   b. The software engineering approach
   c. Structured design model
   d. Formal GIS design methodology
   e. Verification and validation

14. GIS output
   a. The display of analysis
   b. Cartographic output
   c. Map design controls
   d. Nontraditional cartographic output
   e. Non-cartographic output
   f. Technology and GIS output

15. With repeat: Updated versions of software - methodologies and tools.

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
6. Repeating students will gain enhanced skills and proficiencies through learning and applying methodologies and tools from updated and upgraded versions of the software.

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 20 - 40%

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

Create GIS map	Skill Demonstrations 10 - 20%

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

Multiple choice, completion, true-false, short answer	Exams 50 - 70%

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, DeMers M.N. (2008), John Wiley & Sons, Inc., NY