GIS 52 Course Outline as of Spring 2010

CATALOG INFORMATION

Dept and Nbr: GIS 52   Title: ADVANCED GIS
Full Title: Advanced Geographic Information Systems (GIS)
Last Reviewed: 10/10/2016

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: 33 - 3 Enrollments Total
Also Listed As:
Formerly:

Catalog Description:
This is an advanced project-based course where the student will apply fundamental and
intermediate concepts in geographic information systems (GIS) to a specific project utilizing
GIS technology and industry standard software. Students should come prepared with a project
topic, scope, goals and objectives, and data sources. An oral presentation of the project will be
made at the completion of the course.

Prerequisites/Corequisites:
Course Completion of GIS 51 OR Course Completion of APTECH 54B (or CEST399.54)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: This is an advanced project-based course where the student will apply fundamental
and intermediate concepts in geographic information systems (GIS) to a specific project utilizing
GIS technology and industry standard software. Students should come prepared with a project
topic, scope, goals and objectives, and data sources. An oral presentation of the project will be

made at the completion of the course. (Grade Only)
Prerequisites/Corequisites: Course Completion of GIS 51 OR Course Completion of APTECH 54B (or CEST399.54)
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: 3 Enrollments Total

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 2009	Inactive:	Fall 2021
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. Research and acquire GIS data
2. Edit, query and analyze geographic and tabular data
3. Perform advanced spatial analysis using GIS technology
4. Customize software for spatial analysis queries
5. Create layouts and query information using GIS techniques
6. Prepare and present a GIS project with supporting data
7. Repeating students will gain enhanced skills and proficiiencies through learning and applying methodologies and tools from updated and upgraded versions of the software.

Topics and Scope:

1. Introduction to research methods
   a. Development of a research question
   b. Literature review
   c. Stages of a project
   d. Scientific writing format
   e. Publishing results
   f. Professional liability and ethics

2. Data development
   a. Data collection for research
   b. Basic descriptive vs. inferential methods

c. Analysis plan
   d. Geographic data collection
   e. Data editing and reduction cycles
   f. Data summarization
   g. Data flow

3. Model selection
   a. Analysis type
   b. Data compatibility
   c. Pilot study
   d. Final model(s)
   e. Validity check

4. Project summarization
   a. Charts, tables, graphs, diagrams
   b. Data compatibility
   c. Slides as an outline
   d. Map as a document

5. Project Publication/documentation
   a. Cite all references
   b. Document all data sources
   c. List all error and disclaimers
   d. Ensure data integrity
   e. Know the law

6. Formal Presentation
   a. Know your audience
   b. Know your data
   c. Know your design
   d. Content, relevance, format, timing, forum

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

Assignment:

1. Two to four written research assignments including data acquisition, editing and analyzing data from outside sources using the internet and Global Positioning Systems (GPS)
2. Reading assignments averaging 10-30 pages per week. The reading will be assigned each week for the material relevant to early phase class topics.
3. Project map development
4. Project presentation
5. 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.

| Reports including research data, analytical papers | Writing 20 - 30% |

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

| None | Problem solving 0 - 0% |

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

| Demonstration of technology use, final oral presentation | Skill Demonstrations 70 - 80% |

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

| None | Exams 0 - 0% |

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. N.Y.
 An Introduction to Scientific Research Methods in Geography, Montello, D. (2006). Sage Publications Inc.
The Environmental Systems Research Institute (ESRI) Guide to GIS Analysis, Vol. 2, Mitchell, A. (2005). ESRI Press
Selected Articles and Scholarly Publications