

**Course Outline**

**COURSE:** CSIS 61                      **DIVISION:** 50                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Fall 2011                      **Inactive Course**

**SHORT TITLE:** INTRO TO GIS

**LONG TITLE:** Introduction to Geographic Information Systems

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
4	18	Lecture:	3	54
		Lab:	3	54
		Other:	0	0
		Total:	6	108

**COURSE DESCRIPTION:**

The Geographic Information Systems (GIS) class introduces students to and teaches them how to use desktop GIS software. GIS is a computer-based data-processing tool used to analyze and manage spatial information that combines computers and geography. May be repeated three times for credit. This course has the option of a letter grade or pass/no pass. **ADVISORY:** CSIS 1 or CSIS 2 or equivalent computer experience.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

- L - Standard Letter Grade
- P - Pass/No Pass

**REPEATABILITY:** R - Course may be repeated  
Maximum of 3 times

**SCHEDULE TYPES:**

- 02 - Lecture and/or discussion
- 03 - Lecture/Laboratory
- 04 - Laboratory/Studio/Activity

**STUDENT LEARNING OUTCOMES:**

1. Display, navigate, and analyze map data

ILO: 7,3,2

Measure: Quiz, printed report, homework, projects

2. Symbolize and label maps

ILO: 3,5,7,2,1

Measure: Homework, projects, quiz

3. Query and process map data

ILO: 7,2,3,1

Measure: Homework, projects, reports

4. Create and edit map data.

ILO: 7,2,3

Measure: Projects, homework, test

## **CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Inactive Course: 09/26/2011

Students repeating this class will have chance to improve their skills under supervision of an instructor. Repetition will especially be useful when the software has changed or new software applications are used in the class.

WEEKS 1-2 6/6 HOURS

Lecture:

What is GIS: definitions, history, and sources of information?

Introduction to ArcGIS and features of map software

Homework/Lab:

Use ArcGIS to become familiar with map software features such as layers, shape, size, and numeric values.

Performance objectives

Provide two definitions of GIS, and several major historical and information sources.

Use ArcGIS to look at maps and produce printed output.

WEEKS 3-4 6/6 HOURS

Lecture:

GIS roots in cartography

Attribute information, map scale, and projections.

Display and navigating maps.

Homework/Lab:

Use ArcGIS to display and navigate maps.

Display maps using different information, scales, and projections.

Performance objectives

Identify and explain attribute information, scale, and projections in maps.

Use ArcGIS to display and navigate maps, and print output.

Do search with map data and produce output.

WEEKS 5-6 6/6 HOURS

Lecture:

Maps as numbers: structuring attributes, topology, and number formats.

Symbolizing features and rasters.

Classifying features and rasters.

Homework/Lab:

Use symbolizing features by categorical attributes.

Classify features by standard methods and use graduated and chart symbols.

Performance objectives

Explain how visual maps are converted to numbers using attributes and topology.

Explain map symbology and map styles.

Explain graduated and chart symbols used in two maps.

WEEKS 7-8 6/6 HOURS

Lecture:

Getting maps into the computer.

Locating existing map data, digitizing and scanning, field and image data.

Labeling features

Querying map data

Homework/Lab:

Establish rules for placing labels and then label a map.

Place both dynamic interactive labels and annotation on a map.

Performance objectives

List sources of existing map data.

Produce a GIS map by entering data.

Label two maps using standard rules and your new rules.

Query map data selecting features by attributes and produce a report.

WEEKS 9-10 6/6 HOURS

Lecture:

Basic map database management

Queries: search by attributes and geography

Joining and relating tables

Selecting features by location

Mid-term test

Homework/Lab:

Join and relate tables to produce map output.

Use location queries and combine attribute and location queries.

Mid-term projects due.

Performance objectives

Use databases to work with maps and do queries.

Use joined and related tables to produce map output and reports.

Use location queries to look at maps and produce new maps.

WEEKS 11-12 6/6 HOURS

Lecture:

Geographic data: attributes, statistical analysis, and spatial analysis.

Spatial description, relationships, and analysis

Preparing data for analysis

Analyzing spatial data

Homework/Lab:

Process map data using dissolved features and clipped layers.

Use map data to create graphs and export data.

Produce maps with overlaying data and calculated attribute values.

Performance objectives

Produce reports using map statistical analysis.

Produce results using spatial information.

Produce results after using dissolved features and clipped layers.

Produce maps with overlaying data and calculated attribute values.

WEEKS 13-14 6/6 HOURS

Lecture:

Making maps with GIS: parts of a map, map types, and designing maps.

Projecting data in ArcMap.

Building geodatabases.

Homework/Lab:

Use ArcMap to project data for display.

Use ArcMap define a projection.

Create a personal geodatabase and use feature classes.

Adding fields and domains.

Performance objectives

List the major parts of a map, map types, and ways to design maps.

Create a personal geodatabase and produce output to hand in.

Use feature classes, and new fields and domains with your maps.

WEEKS 15-16 6/6 HOURS

Lecture:

How to pick a GIS: software types and data structures

Creating features

Editing features and attributes.

Homework/Lab:

Draw features in a map and use feature construction tools.

Delete and modify features, split and merge features, and edit feature attribute values.

Performance objectives

Evaluate several GIS software and database systems.

Use features and construct features in a map.

Using an existing map with features, delete and modify features, split and merge features, and edit feature attribute values.

WEEK 17 - 18 6/6 HOURS

Lecture:

Case studies of GIS use

The future of GIS: software, data, and hardware

Geocoding addresses

Making maps quickly and making maps for presentation.

Final exam

Final projects due.

Homework/Lab:

Using geocoding service, match and rematch addresses.

Open a map template, add data and draw graphics on the map.

Performance objectives

Do three types of studies using GIS software and data.

Create geocoding serving for a map

Create some maps for presentation with titles, legends, and scale bar.

**ASSIGNMENTS:**

Included in content section.

**METHODS OF INSTRUCTION:**

Lecture, demonstrations, lab projects.

**METHODS OF EVALUATION:**

The types of writing assignments required:

Written homework

Lab reports

The problem-solving assignments required:

Quizzes

Exams

The types of skill demonstrations required:

Class performance

Field work

Performance exams

The types of objective examinations used in the course:

Multiple choice

True/false

Matching items

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 10% - 30%

Problem-solving demonstrations: 10% - 30%

Skill demonstrations: 40% - 70%

Objective examinations: 20% - 30%

Other methods of evaluation: 0% - 0%

**REPRESENTATIVE TEXTBOOKS:**

Required:

Keith C. Clarke, "Getting Started with Geographic Information Systems", Prentice Hall, 2010, or other appropriate college level text.

ISBN: 0131494988

Reading Level of Text: 12, Verified by: dvt

**ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 200470

UC TRANSFER:

Transferable UC, effective 200470

**SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: I

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department: CSIS

CSU Crosswalk Course Number: 61

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: C

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000276392

Sports/Physical Education Course: N

Taxonomy of Program: 070210