

**GIS 53 Course Outline as of Fall 2021****CATALOG INFORMATION**

Dept and Nbr: GIS 53                      Title: CARTOGRAPHY IN GIS  
 Full Title: Cartography in Geographic Information Systems (GIS)  
 Last Reviewed: 2/22/2016

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	8	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:

**Catalog Description:**

This course provides training in the knowledge of hard copy and web-based cartographic principles and the skills to implement these principles when creating a map within a Geographic Information Systems (GIS). It assists students in preparation for a career within the field of GIS. It is designed for those students who wish to produce maps which clearly communicate the results of GIS data and analysis.

**Prerequisites/Corequisites:**

Course Completion of GIS 40

**Recommended Preparation:**

Course Completion or Concurrent Enrollment in GIS 51

**Limits on Enrollment:****Schedule of Classes Information:**

Description: This course provides training in the knowledge of hard copy and web-based cartographic principles and the skills to implement these principles when creating a map within a Geographic Information Systems (GIS). It assists students in preparation for a career within the field of GIS. It is designed for those students who wish to produce maps which clearly

communicate the results of GIS data and analysis. (Grade Only)

Prerequisites/Corequisites: Course Completion of GIS 40

Recommended: Course Completion or Concurrent Enrollment in GIS 51

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>		Effective:	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Produce, interpret and critique hard copy and web-based maps.
2. Create Geographic Information Systems (GIS) maps following standard cartographic principles which can be utilized within a professional portfolio.

### **Objectives:**

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

1. Create a hard copy or web-based map with clear purpose and objectives.
2. Design a map using effective fonts.
3. Use proper label placement of text to improve the interpretation of a map.
4. Implement proper color mixing using tools provided within a GIS.
5. Use color to create a more easily understood map.
6. Create custom map symbols for use within GIS.
7. Apply notation to facilitate proper interpretation of a map.
8. Create graphical representation to allow data to be displayed multiple ways.
9. Evaluate and critique maps created by others.

### **Topics and Scope:**

#### **I. Map design**

- A. Introduction to map design
- B. Map design for intended audience and viewing media
- C. Evaluate and critique maps designed by others
- D. Create a layout
- E. Export maps, including raster and vector exports to web

- II. Type Basics
  - A. The elements of type
  - B. Fonts within Windows OS
  - C. Font families
  - D. Type effects, including callouts, shadows and halos
- III. Type in map design
  - A. Text types in a map
  - B. Label placement
- IV. Color basics
  - A. Color perception
  - B. Color systems
  - C. Mix colors
- V. Color usage within maps
  - A. Color conventions in mapping
  - B. Color schemes
  - C. Color constraints
- VI. Symbolization on the map
  - A. Apply existing symbols to the map
  - B. Create custom point, line, polygon/area and other symbols on the map
- VII. Map elements
  - A. What are map elements
  - B. Apply map elements to overall design
  - C. Create custom elements
- VIII. Cartographic representation
  - A. Define hard-copy and web-based cartographic representations
  - B. The benefits of using representations
  - C. Create hard copy and web-based cartographic representations

**Assignment:**

1. Textbook reading: Selected chapters plus instructor-prepared materials weekly
2. Lab assignments: (8-12)
3. Create hard copy and web-based GIS maps: (8-12)
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.

Lab assignments	Problem solving 20 - 40%
<b>Skill Demonstrations:</b> All skill-based and physical demonstrations used for assessment purposes including skill performance exams.	
Create hard copy and web-based GIS maps	Skill Demonstrations 40 - 60%
<b>Exams:</b> All forms of formal testing, other than skill performance exams.	
Multiple choice, completion, true-false, short answer	Exams 20 - 40%
<b>Other:</b> Includes any assessment tools that do not logically fit into the above categories.	
None	Other Category 0 - 0%

### **Representative Textbooks and Materials:**

Brewer, Cynthia A., Designing Better Maps: A Guide for GIS Users, 1nd ed., ESRI Press, Redlands, California, 2015

Borden Dent, Jeff Torguson, Thomas Hodler, Cartography: Thematic Map Design, 6th Edition, McGraw-Hill 2008 (classic)

Pinde Fu, Jiulin Sun, Web GIS: Principles and Applications, 1st Edition, ESRI Press, 2010

Instructor-prepared materials