Course Outline of Record Report

GEOG155 : Introduction to Geographic Information Systems

General Information

Author:	• Michelle Stonis • Reed, Michael
Course Code (CB01) :	GEOG155
Course Title (CB02) :	Introduction to Geographic Information Systems
Department:	GEOG
Proposal Start:	Winter 2025
TOP Code (CB03) :	(2206.00) Geography
CIP Code:	(45.0701) Geography.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000575572
Curriculum Committee Approval Date:	04/10/2024
Board of Trustees Approval Date:	06/18/2024
Last Cyclical Review Date:	04/10/2024
Course Description and Course Note:	GEOG 155 is an introduction to Geographic Information Systems (GIS) science including geographic data gathering, analysis, and display through digital methods. GIS is used to explore spatial questions about environmental and social issues. The laboratory component demonstrates these principles through hands-on experience with map making using microcomputers running ArcGIS and other GIS software. Note: Students should have basic familiarity with microcomputers and the Windows operating system.
Justification:	Mandatory Revision
Academic Career:	• Credit
Author:	No value

Academic Senate Discipline

Primary Discipline:	• Geography
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

• Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

Transferability & Gen. Ed. Options

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

C-ID	Area	Status	Approval Date	Comparable Course
GEOG	Geography	Approved	08/29/2016	GEOG 155 - Introduction to Geographic Information Systems and Techniques, with Lab

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	90
Total Course Out-of-Class Hours	72
Total Student Learning Hours	162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	2	4
Laboratory Hours	3	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	36
Laboratory	54
Studio	0
Total	90
Course Out-of-Class Hours	
Lecture	72

Laboratory	0
Studio	0
Total	72

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Pre-requisites, Co-requisites, Anti-requisites and Advisories

No Value

Entry Standards

Entry Standards

Course Limitations

Cross Listed or Equivalent Course

Specifications

Methods of Instruction

Methods of Instruction	Lecture
Methods of Instruction	Laboratory
Methods of Instruction	Discussion

Methods of Instruction	Collaborative Learning

Out of Class Assignments

- Written homework reports (e.g., describe an application for GIS in a given field)
- Reports analyzing maps found online
- Field data analysis reports (e.g., collect, map, and utilize GIS software to analyze field data)

Methods of Evaluation	Rationale
Other	Hands-on laboratory exercises using GIS software
Project/Portfolio	GIS research project (e.g., create a GIS map based on database)
Exam/Quiz/Test	Objective and subjective midterm
Exam/Quiz/Test	Objective and subjective final examination

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Michael Law	Getting to Know ArcGIS Desktop 10.8	ESRI Press	July, 2022.	978-1589485778

Other Instructional Materials (i.e. OER, handouts)

No Value

Materials Fee

No value

Learning Outcomes and Objectives

Course Objectives

Define Geographic Information Systems (GIS).

Describe and evaluate coordinate systems and map projections.

Identify, compare, and contrast both vector and raster GIS data formats.

Evaluate the use of specific geo-processing tools.

Identify, locate, and evaluate GIS data sources and the importance of metadata.

Evaluate the capabilities of various GIS software programs.

Apply cartographic principles of hierarchy, contrast, balance, elements, scale, and resolution to communicate geographic information to the appropriate audience.

Apply spatial analysis functions on a GIS to solve a geospatial problem.

SLOs

Course Content

Lecture Content

Fundamental Concepts in Geographic Information Systems (12 hours)
- Definition of GIS Vector and raster systems
- Scale and resolution
- Map projections and coordinate systems
- Applications of GIS
- Basics of cartographic design

GIS Data Sources (6 hours)
- Identify sources of GIS data, including remotely-sensed data
- Metadata
- Georeferencing and Global Positioning Systems (GPS)
- Convert digital data to a uniform projection and scale
- Vector-to-raster and raster-to-vector data conversions, error propagation

Designing and Implementing a GIS (8 hours)
- User needs assessment
- Database design and management
- Fundamentals of data storage
- Database management Input of data with GPS
- Digitizing, scanning, editing and output

Spatial Analysis (10 hours)
- Buffering
- Map algebra
- Network analysis
- Interpolation and surface analysis
- Modeling
- Applications in decision-making

Total Hours: 36

Laboratory/Studio Content

Laboratory Content (54 Hours)
- Utilizing GIS software in laboratory activities to plan, evaluate and execute a GIS project
- Identifying a problem of a geospatial nature
- Outlining a strategy to solve the problem
- Locating relevant data sources

- Designing and evaluating a plan to acquire the relevant data sources
- Incorporating data sources into a Geographic Information System and executing strategy to solve a geospatial problem
- Applying principles of spatial analysis
- Presenting results

Total Hours: 54

Additional Information

Is this course proposed for GCC Major or General Education Graduation requirement? If yes, indicate which requirement in the two areas provided below.

No

GCC Major Requirements

No Value

GCC General Education Graduation Requirements

No Value

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value

If additional resources are needed, add a brief description and cost in the box provided.

No Value