

GEOG-130: DATA ACQUISITION AND MANAGEMENT IN GEOGRAPHIC INFORMATION SYSTEMS (GIS)

GIS Program

Course

- GEOG-130: Data Acquisition and Management in Geographic Information Systems (GIS)
- GEOG-131: Remote Sensing

Effective Term

Fall 2023

CC Approval

3/17/2023

AS Approval

4/11/2023

BOT Approval

4/20/2023

COCI Approval

5/12/2023

SECTION A - Course Data Elements

CB04 Credit Status

Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Earth Science (Master's Degree)	Or
Geography (Master's Degree)	Or
Computer Information Systems (Any Degree and Professional Experience)	

Subject Code

GEOG - Geography

Course Number

130

Department

Geography (GEOG)

Division

Science and Engineering (SE)

Full Course Title

Data Acquisition and Management in Geographic Information Systems (GIS)

Short Title

GIS Data Acquisition & Mgmt

CB03 TOP Code

2206.10 - *Geographic Information Systems

CB08 Basic Skills Status

NBS - Not Basic Skills

CB09 SAM Code

D - Possibly Occupational

Rationale

To develop new GIS courses and develop a 12 unit Certificate of Achievement program to meet the skills needed in entry-level and advanced workforce as indicated by current Labor Market Data.

SECTION B - Course Description

Catalog Course Description

Introduces variety of data formats used in Geographic Information Systems (GIS), and the concepts of data collection and data management in geospatial analysis. Examines quantitative techniques for collection, classification, management of geographical data, and publication of geospatial services.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade or Pass/No Pass

Allow Audit

Yes

Requisites

Prerequisite(s)

Completion of GEOG-121 with a minimum grade of C.

Requisite Justification

Requisite Description

Course in a Sequence

Subject

GEOG

Course #

121

Level of Scrutiny

Content Review

Upon entering this course, students should be able to:

- 1) Prepare and analyze geographic data.
- 2) Apply intermediate GIS techniques for raster and vector-based analyses.
- 3) Determine an appropriate approach to solving a spatial problem.
- 4) Demonstrate proficiency in using geospatial tools and methods.

SECTION D - Course Standards

Is this course variable unit?

No

Units

3.00000

Lecture Hours

54

Outside of Class Hours

108

Total Contact Hours

54

Total Student Hours

162

Distance Education Approval**Is this course offered through Distance Education?**

Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Permanent
Hybrid	Permanent

SECTION E - Course Content**Student Learning Outcomes**

Upon satisfactory completion of the course, students will be able to:	
1.	Describe and demonstrate proficiency in field data collection, and the construction of spatial data from known locations.
2.	Proficient in collecting, recording, and utilizing spatial data and databases.
3.	Develop and manage a GIS database.
4.	Demonstrate an understanding of the fundamentals of GIS data storage and interface.

Course Objectives

Upon satisfactory completion of the course, students will be able to:	
1.	Describe various data collection and GPS technology and its components and applications.
2.	Collect spatial data from known locations.
3.	Create and manage a GIS database.
4.	Practice the fundamentals of GIS data storage and interoperability.
5.	Determine and utilize appropriate field procedures for data collection
6.	Prepare written and diagrammatic summaries of various data sources utilized in project data collection.
7.	Evaluate and summarize the different applications of mobile mapping.
8.	Export post-processed data to a GIS file format.

Course Content

1. Describe and understand geospatial data organization, file management and fundamentals of data formats.
2. Design and plan a project for field data collection
 - a. Identify a location and subject
 - b. Identify survey features
 - c. Plan and schedule for field data acquisition
3. Prepare for and Acquire Field Data
 - a. Understand GPS settings
 - b. Determine coordinate system and datum
 - c. Acquire Field Data
4. Post-processing data
 - a. Export data for GIS integration
 - b. Compare and assess pre- and post-processed data
5. Mapping
6. Current and upcoming trends in field data collection

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Activity	Collect primary data to interpret the change in the amount of groundwater in the Central Valley of California, in relation to the 2012-2015 drought.
Lecture	Interactive hands-on learning lecture, introducing context and application of data collection tools and format.
Field Trips	Field data collection will take place outside of the classroom, on campus or off campus.

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
 Discussion Boards
 E-mail Communication
 Video or Teleconferencing

Student-Initiated Online Contact Types

Discussions
 Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Projects	Course project in which students will collect and/or use geospatial data and GIS to answer a question. Examples: 1) Geospatial Data and Earthquake Hazard assessment. 2) Vegetation sampling GPS locations and associated soil data.
Other	Field Trips – Accurate field data collection will take place outside of the classroom, on campus or off campus.
Quizzes	Quizzes may be given throughout the course. Example questions: 1) What are coordinate systems? 2) What is GPS and how is it used in GIS?

Assignments

Reading Assignments

Reading professional publications, internet research, and class handouts provided by the instructor.

Examples:

- 1) Excerpts from professional publications, researching the ESRI internet site and assessing the documentation.
- 2) assigned topics such as "Managing 3D data."

Writing Assignments

Writing assignments will have individual or collaborative research problems and/or proposals that will initiate collection and management of data and then performing GIS analysis to solve a problem presented for study.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Martin Wegeman, Jakob Schwalb-Willman, Stefan Dech

Title

An Introduction to Spatial Data Analysis

Publisher

Pelagic Publishing

Year

2020

ISBN #

1784272132

Proposed General Education/Transfer Agreement**Do you wish to propose this course for a Local General Education Area?**

No

Do you wish to propose this course for a CSU General Education Area?

No

Do you wish to propose this course for a UC Transferable Course Agreement (UC-TCA)?

Yes

Do you wish to propose this course for an IGETC General Education Area?

No

Course Codes (Admin Only)**CB10 Cooperative Work Experience Status**

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Program Applicable

Allow Pass/No Pass

Yes

Only Pass/No Pass

No

Faculty Author's Comments

This course proposal has been reviewed by a committee comprised of California GIS professionals.

Reviewer Comments**Stacey Howard (showard) (Wed, 07 Dec 2022 05:38:04 GMT):** Articulation Officer. GEOG 120 is appropriate for UC-TCA; this course is not offered at UC and not eligible for UC transfer.**Stacey Howard (showard) (Fri, 09 Dec 2022 05:06:56 GMT):** Articulation Officer. GEOG 120 is appropriate for UC-TCA; this course is not offered at UC and not eligible for UC transfer**Stacey Howard (showard) (Fri, 09 Dec 2022 05:14:55 GMT):** Articulation Officer. GEOG 131 is found at CCCs approved as transferable to UC. Submit for UC-TCA.**Seth Anderson (sethe.anderson) (Tue, 14 Feb 2023 18:20:30 GMT):** Rollback: Review grading option and add specific entry skills (formatted like SLOs or objectives) under the Requisite Justification field