Northwest Arkansas Community College
(Science and Mathematics Division)

Discipline Code
GEOS

Course Number
2943

Course Title
Introduction to Geographic Information Sciences I

Catalog Description
Introduces students to the basic spatial data manipulation skill set necessary for utilizing GIS in the workplace. Topics of study will come from fields such as environmental and regulatory, landscape design, land use planning, and mapping. Class time will be divided into lecture, computer lab, and field work.

Prerequisites
None

Credit Hours
3 credit hours

Contact hours
30 lecture contact hours; 30 lab contact hours

Load hours
4 load hours

Semesters Offered
Fall

ACTS Equivalent
none

Grade Mode
A-F

Learning Outcomes
Students completing this course will:
- Explain basic GIS terminology such as raster, vector, layer, shapefiles, etc.
- Import, store, and manage geographical data from a variety of sources.
- Organize layers, including such tasks as layer activation, hierarchy, and manipulation of layer display properties to optimize visual effect.

- Find and query spatial data by location and non-spatial data by attribute.
- Create and analyze new data by creating spatial relationships between multiple datasets.
- Display results in a variety of formats, including map, report, and graph.
- Utilize skills to create a GIS product for analysis of local problems, as a final group project.

General Education Outcomes Supported
- Students can use computers proficiently.
- Students can achieve mathematical literacy.

Standard Practices
Topics list:
- Map projections and coordinate systems.
- Raster and vector data and the essential differences between the two.
- Symbolizing and classifying features for optimum map display and analysis.
- Creating subsets from the database through attribute and location queries.
- Generating new data sets through combining existing data layers (geoprocessing).
- Digitizing and editing new map features and their attributes.
- Producing quality presentation maps from templates and other resources.
- Exploring and utilizing the growing capabilities of cloud GIS.

Learning activities
- Courses must, at a minimum, cover the core learning outcomes for each topic. Faculty may add to these outcomes, but may not omit any of them.
- Final project in addition to exams and homework.

Assessments
- As part of all students' final exam, learners will use GIS software and NWACC desktop computers to produce a multi-layered map whose layer properties (color, transparency, symbols, etc.) are dictated by a set of ten instructions selected and approved by GIS faculty.

Grading guidelines
- A minimum of 50% of the grade should originate from activities which demonstrate student ability to perform common geospatial operations using GIS software.

Revision Date
November 2, 2022