

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: GIS 201

Credits: 3

Course Title: Geographical Information Systems II

Course Description:

Provides a continuation of GIS 200, with emphasis on advanced topics in problem-solving, decision-making, modeling, programming, and data management. Covers map projections and data formats, and methods for solving the problems they create. Prerequisite: GIS 200. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

General Course Purpose: (Who would benefit from taking this course?)

This course is a requirement for students pursuing the Geospatial Information and Positioning Specialist Career Studies Certificate and may be used as an elective for students pursuing the Geospatial and Engineering Technologies Specialization of the Architectural and Civil Engineering Technology AAS degree.

Course Objectives:

Upon completing the course, students will be able to

1. Locate or collect, manipulate, and analyze spatial data.
2. Demonstrate a synthesis of cartography, database management, and spatial analysis by successfully manipulating a GIS to analyze complex spatial problems.
3. Demonstrate mastery of intermediate spatial analysis techniques, such as employing Boolean logic, enforcing planar topology within a geodatabase, and employing overlay analysis.
4. Demonstrate proficiency in solving classic spatial analyses such as “site selection.”
5. Expand their GIS “portfolios,” having completed a self-selected spatial analysis project informing a managerial decision. (This term project is a synthesis of the theory and skills developed during the course.)
6. Demonstrate adequate skills to complete a GIS internship.

Major Topics to be Included:

1. Spheroids, Datums, and Projecting Data
2. Map Types, Data Classification and Symbology
3. Spatial Topology
4. Basic Spatial Statistics
5. Spatial Queries
6. Spatial Joins
7. Map Overlay Techniques
8. Geocoding
9. Advanced Editing/Digitizing
10. Advanced Geodatabases, Data Models, Data Management
11. Network Analysis
12. Raster Analysis

Effective Date of Course Content Summary: August 13, 2013