NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
GIS 201 – GEOGRAPHICAL INFORMATION SYSTEMS II (3 CR.)

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. Lecture 2 hours per week. Laboratory 2 hours per week. Total 4 hours per week.

General Course Purpose

This is the second class in a series of GIS courses, completion of which will give the diligent student the requisite skills to succeed as an entry-level GIS analyst in the private or public work place. Students enrolling in this class are expected to have basic familiarity and skills with map coordinate systems and projections, geodatabases, basic spatial analysis techniques, and data geovisualization.

The course builds on the GIS foundation laid in GIS 200, with emphasis on spatial analysis and geodatabase development. The final exam is comprised of a series of GIS analyses ("practical" applications of GIS problem solving); the term project is the product of student application of spatial analysis techniques learned during the course to a student-selected problem.

Course Prerequisites/Corequisites

Prerequisite: GIS 200, working knowledge of ESRI ArcGIS is required. Work experience with GIS may be substituted at instructor's discretion

Course Objectives

Upon completing the course, the successful student will:

- Have mastered basic skills to locate or collect, manipulate, and analyze spatial data
- Demonstrate a synthesis of cartography, data base management, and spatial analysis in successfully manipulating an GIS in analyzing complex spatial problems
- Have mastered intermediate spatial analysis techniques, such as employing Boolean logic, enforcing planar topology within a geodatabase, an employing overlay analysis
- Demonstrate proficiency in solving classic spatial analyses such as "site selection"
- Expand his/her GIS "portfolio," 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)
- Have demonstrated adequate skills to complete a GIS internship

Major Topics to be Included

- Spheroids, datums, and projecting data
- Map types, data classification and symbology
- Spatial topology
- Basic spatial statistics
- Spatial queries
- Spatial joins
- Map overlay techniques
- Geocoding
- Advanced editing/digitizing
- Advanced geodatabases; data models, data management
- Network Analysis

- Raster analysis