

SUNY Cortland
Geography Department
GRY 324 - 001 – Cartography and Geographic Information

Course Information:

Fall 2009
Credit Hours: 3
Location: Old Main 231
Class Time: TH 1:15 – 2:30 p.m.

Professor Information:

Instructor: Scott Anderson
Phone: 607 753-5547
Office: 221E Old Main
Office Hours: MW 9:30 am – 12:00 pm
E-mail: andersons@cortland.edu

Text: *Designing Better Maps; a Guide for GIS Users*

Course Description: (F) Principles and methods of spatial data collection, processing, analysis and display. Introduction to cartography, Geographic Information Systems and Global Positioning Systems. Fulfills: LASR. (3 cr. hr.)

Course Attendance Policy: To complete this course successfully, students must attend class and complete classroom activities. Attendance is mandatory and will be monitored by the instructor.

Course Objectives: In this course, students develop skills in the use of GPS (Global Positioning Systems) hardware and GIS (Geographic Information Systems) software, specifically ArcGIS 9.3. These skills in particular are highly valued today in government and industry because they improve analysis, problem-solving, and decision-making. Therefore, this course is designed to provide students with practical experience in the use of cartography, GIS, and GPS as planning and strategic decision-making tools.

Cartography skills, Global Positioning Systems, and GIS software have many useful applications. In the first place, they allow skilled users to efficiently collect (in the field) and prepare (in the lab) presentation quality maps for communicating spatial information. (*Spatial means occurring across space.*) Most people understand map information more easily than information in a table or list, so these uses fill a very real need, especially for decision makers. Because GIS software can produce maps quickly they are now used regularly for meetings and presentations as well as publications. This makes skilled GIS users highly valued employees of marketing firms and other businesses as well as planning agencies and other federal, state, and local government organizations.

Cartography skills, GPS tools, and GIS software allow users to conveniently and accurately organize large (sometimes tremendously large) amounts of spatial information. *GIS in effect means the combining of a map as a display medium with a database of information pertaining to spaces on the map.* GIS databases allow for the storing, arranging, inventorying, querying, retrieving, and displaying of large amounts of this information.

Cartography, GPS, and GIS software are also being used increasingly for geographical analysis and modeling. For geographical analysis, maps are produced in which spatial distributions of database information are displayed. Often, changes in these distributions across time become key to analysis. For example, county planning departments may follow the spatial distribution of ground water contamination over a period of time to determine the source of the pollution. For geographical modeling, relationships between different types of data are specified and tested to help determine the consequences of specific decisions and policies. For instance, a highway department may wish to model changing traffic flow patterns that might occur if they were to alter a route from point A to point B.

In accordance with national standards, objectives of this course include the following:

- Analyzing spatial information about people, places, and environments on the Earth's surface;
- Creating, interpreting, using and distinguishing various representations of Earth and employing appropriate geographic tools including maps, databases, charts, graphs, etc. to generate, manipulate, and interpret information;

- Estimating and calculating distance, scale, area, and density, and distinguishing spatial distribution patterns;
- Locating, distinguishing, and describing relationships among varying regional and global patterns of geographic phenomena; and
- Enhancing students' abilities to ask questions and to acquire, organize, and analyze geographic information so they can answer geographic questions as they engage in the study of substantive geographic content.

Course Schedule and Activities: GIS, GPS, and cartography is best learned by doing, so this course will be organized around projects that each student will be required to complete. Instruction will begin with each student completing tutorial assignments from the tutorial, *Getting to Know ArcGIS*. These tutorials will take approximately 5 weeks. For the subsequent weeks, students will complete projects assigned by the instructor. These assignments will be graded. In addition, students will be required to complete a final project. Because of equipment and space limitations in the lab, students will be expected to do a substantial amount of mapping work during non-class hours. Generally, the lab is open weekdays from 8:00 a.m. to 9:00 p.m. with additional hours on Sunday.

Reading Assignments: The text, *Designing Better Maps*, will be used to help students produce maps that are clear, easy to understand, and pleasant to view. The First Hour Exam will address skills and information in the text. Reading assignments will be as follows:

Week 1:	Chapter 1: The Big Picture on Design	Pgs. 1-38.
Week 2:	Chapter 2: Type Basics	Pgs. 39-60
Week 3:	Chapter 3: Effective Type in Map Design	Pgs. 61-88
Week 4:	Chapter 4: Color Basics	Pgs. 89-112
Week 5:	Chapter 5: Color Decisions for Mapping	Pgs. 113-140
Week 6:	Chapter 6: Customizing Symbols	Pgs. 141-162
Week 7:	Chapter 7: Beyond Default Marginal Elements	Pgs. 163-182
Week 8:	<u>FIRST HOUR EXAM</u>	

Evaluation of Student Performance: Grades will be assessed according to the following criteria:

Attendance, participation, and completion of classroom assignments	20%
First Hour Exam	30%
Final Project	50%

If you are a student with a disability and wish to request accommodations, please contact the Office of Student Disability Services located in B-40 Van Hoesen Hall or call (607) 753-2066 for an appointment. Information regarding your disability will be treated in a confidential manner. Because many accommodations require early planning, requests for accommodations should be made as early as possible.