



Geography 379

Introduction to GIS

Fall 2008
University of Illinois



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TA office hours: T 1-3, Davenport 323

Class: MW 1:00-1:50
Classroom: ME 260
Lab: Th 12:30-1:50 or F 1:00-2:20
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Course description:

This is an entry-level class in geographic information systems, or GIS. The course maintains a balance between the thought processes behind GIS (theory) and the technical aspects of GIS applications (software). This course is designed to encourage students to think spatially and to provide experience that can be used in both academic and working environments in a wide variety of disciplines.

Course objectives:

- To understand fundamental geographic concepts such as cartographic design and spatial analysis.
- To develop confidence and competence in using ArcGIS software, including display, query, mapping, and analysis.
- To integrate data and information from multiple sources and disciplines.
- To appreciate the ethical and social issues involved in using GIS.
- To solve problems with GIS, including applications to new situations.

Required text:

The required textbook is Concepts and Techniques in Geographic Information Systems by Lo and Yeung, 2nd edition. Because of the rapid pace at which the field of GIS is developing, earlier editions of the textbook are *not* acceptable. Reading assignments are listed below; I prefer that you read the assigned material in advance, but I understand that some people prefer to hear material first and then read the book. (Just don't wait until the night before the exam to do all the reading!) There is an online study guide for the textbook at <http://www.prenhallgeo.com/Lo> that can help you learn the material.

Grading:

Grading will be based on three quizzes plus a final, fifteen labs (done partially in class), ten mini-assignments (done in class), and a semester-long project. The three quizzes will each cover approximately six to seven classes' worth of material, although the final will be

cumulative. There is no lab practical exam; the class project will suffice. (The class project will be further explained at a later date.) The mini-assignments are small activities conducted during class that will help you better understand the class material, such as reading an article and summarizing how GIS was used to answer a research question. Due dates for all assignments and lab exercises are listed below; anything turned in late loses 10% per classroom day. Note that labs are due at the *beginning* of the following lab session.

Points will be awarded as follows:

Assignment	Points
Quizzes/Final	150 (3 quizzes, 50 points each)
Final	100
Class project	200
Labs	260 (13 labs, 20 points each)
Mini-assignments	60 (12 assignments, 5 points each)
Total	770

Expectations:

I expect you to be to class on time, ready to listen with your cell phones off and *not* checking your e-mail during class. Food and drink are not allowed in the lab because of the computer equipment. I expect you to ask questions if you have them, and not to let me go rushing on ahead if you don't completely understand something I've said. Many things in this class build on what comes before them, so if you get confused at some point, it's best in the long run if you speak up. (And remember that if you have a question, it's likely that at least five or six other people do, too!)

On a less pleasant but necessary note: cheating or plagiarism will result in a 0 for the assignment and possibly for the entire course. As defined by the Council of Writing Program Administrators, "plagiarism occurs when a writer deliberately uses someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source." This includes cut-and-pasting paragraphs from Wikipedia, turning in near-identical work as a classmate, or using digital data or maps without labeling the source, as if they were your own creation. See me if you are unsure about what constitutes cheating or plagiarism, or check out <http://www.wpacouncil.org/node/9>.

Any student who may need extra assistance with regards to meeting the requirements of this course (e.g., learning or physical disability) is requested to speak to me as soon as possible so we can discuss how to ensure you get the most out of the class. Thanks!

Course schedule

Week of	Lectures	Lab
8/25 W1	Mon: So what is "GIS" anyway? Wed: And what is a "map"? Read: Chapter 1	Introduction to ArcGIS
9/1 W2	Mon: NO CLASS (Labor Day) Wed: Where exactly are we? Read: Chapter 2, pp. 22-49	Introduction to ArcCatalog and ArcMap
9/8 W3	Mon: Got data? Wed: GPS and GIS Read: Chapter 2, pp. 50-63	Map projections
9/15 W4	Mon: Features vs. fields Wed: Spaghetti and little boxes <i>Quiz 1 handed out</i> Read: Chapter 3	Symbology
9/22 W5	Mon: Quality and errors <i>Quiz 1 due by start of class</i> Wed: GIS in action: vectors <i>Read Jigsaw 1 for class</i> Read: Chapter 4	Digitizing
9/29 W6	Mon: Slivers and gaps Wed: Overlays and buffers Read: Chapter 6	Choropleth maps
10/6 W7	Mon: Categories and colors Wed: Good maps and bad maps Read: Chapter 7	Mapmaking principles
10/13 W8	Mon: On the grid Wed: GIS in action: rasters <i>Quiz 2 handed out</i> <i>Read Jigsaw 2 for class</i> Read: Chapter 5	Map algebra

10/20 W9	Mon: Remote sensing <i>Quiz 2 due by start of class</i> Wed: Flybys and landscapes Read: Chapter 8	Joining and relating
10/27 W10	Mon: The heart of GIS Wed: Paths and networks Read: Chapter 10, pp. 375-393	Geocoding
11/3 W11	Mon: Raster analysis Wed: Making models Read: Chapter 10, pp. 393-405	Spatial analysis
11/10 W12	Mon: Project management Wed: GIS and society: history <i>Quiz 3 handed out</i> Read: Chapter 11, pp 410-425	Surface analysis
11/17 W13	Mon: GIS and society: ethics and legalities <i>Quiz 3 due by start of class</i> Wed: GIS in action: GIS and Society <i>Read Jigsaw 3 for class</i> Read: nothing!	Making spatial decisions
11/24 NO CLASS		
12/1 W14	Mon: Trends in GIS Wed: Frontiers in GIS Read: Chapter 12	Final project
12/8 W15	Mon: Project presentations Wed: Project presentations <i>Final quiz handed out and due Friday at 1:30 P.M.</i>	NO LAB