UEP 232 - Introduction to GIS for Urban and Environmental Analysis

Instructor: Barbara Parmenter
Tues/Thurs 12-1:15 (GIS Center, Tisch Library Map Room)

Course overview

This course will focus on introducing students to the use of geographic information systems in the urban/suburban/metropolitan environment. Students will learn to work with urban spatial databases (including data sets pertaining to land use/land cover, parcel records, census demographics, environmental issues, water, transportation, local government, community development, and businesses). Technical topics to be covered include finding and understanding sources of information for metropolitan spatial databases, integration of data from a variety of sources, database structure and design issues, spatial analysis capabilities, data quality and data documentation. While learning GIS skills, students will complete a mapping/analysis project of their choosing and present the results in a poster and short paper. The course will use ArcGIS 10.2 software. A student may opt to receive a one-year license of ArcGIS 10.2 software for their home use (the software works on a PC but can run on a Mac if you have a PC emulator, plus a license of Windows).

Textbooks

- Required: Andy Mitchell, *The ESRI Guide to GIS Analysis, vol 1: Geographic Patterns and Relationships*, ESRI Press, Redlands, CA
  Note: this book is on reserve at both Tisch and Ginn Libraries

Course objectives

By the end of the course, participants will be able to:

- Identify, locate, and acquire spatial data pertinent to projects in their field of interest, as well as pinpoint significant gaps in or problems with existing information.
- Evaluate the appropriateness of the existing data sources for use in a project.
- Understand the data creation process and create simple data sets and/or add to existing data
- Create spatial data from tabular information that includes a spatial reference
- Perform basic spatial analyses (attribute and spatial queries, buffering, overlays) as well as linking these methods together in a more complex analytical model.
- Create high-quality maps and associated graphics and text that clearly communicate spatial information and analyses

Course Requirements

Students will be expected to attend every class and to complete 6 assignments plus a final project. The final project will be a mapping/analysis project of your choice, in which you assemble and document a spatial database for the project, and create a poster and accompanying short paper explaining the project and showing results. The assignments and final project will require significant additional computer/lab time outside of class (averaging 5-7 hours a week). There are very few readings - the bulk of the work is hands-on for assignments and the final project.

- Assignment 1 - Project Topic Interests (10 points)
- Assignment 2 - Basic Mapping (10 points)
- Assignment 3 - Census Mapping (10 points)
- Assignment 4 - Data Quality Assessment (10 points)

- Assignment 5 - Basic Queries and Project Data Preparation (15 points)
- Assignment 6 - Project Plan (15 points)
- Final Poster and Short Paper (30 points)

Grading
Grading will be based on a 100 point scale as follows:

99-100 - A+
94-98 - A
90-93 - A-
88-89 - B+
84-87 - B
80-83 - B-
78-79 - C+
74-77 - C
70-73 - C-
etc.

Tufts Academic Integrity and Code of Conduct

You will be responsible for following Tufts Academic Integrity Policy and the Student Code of Conduct. Both of these are found on the Student Affairs - Publications web site. **Please read these carefully!** Note this site also describes the *Student Judicial Process* that describes your rights as a student at Tufts and the process to follow if you feel these have been violated.

Plagiarism will not be tolerated. Tufts faculty are *required* to report any instance of plagiarism to the Dean's office - at that point, we have no control over the situation. Please read and review Preventing Plagiarism on the Tufts Acadmeic Resources Center site to understand the various types of plagiarism, including those you may not be aware of. **If you have ANY questions, please contact either instructor early in the semester before you write any assignments. Otherwise we will assume you clearly understand the plagiarism guidelines.**

Style Guidelines

All written work must be consistent with the style guidelines of one of the two major style guides used at UEP - the *Chicago Manual of Style* (MLA) or the *Publication Manual of the American Psychological Association* (APA). Both provide clear guidelines for referencing and citing other works. You may buy either of these - they will be a useful long-term reference. The Purdue Online Writing Lab also has extremely good guidance to both styles.

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Tufts Accessibility Services office.