

## **URPL 969**

### **Applications of GIS in Urban and Regional Planning**

Spring 2005 -- 3 credits

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Wednesdays and Fridays -- 12:15 to 1:30 p.m.  
208 Old Music Hall. Some class periods will be spent in the URPL Computer Lab.

This is an introductory to intermediate-level GIS course that focuses on the application of geographic information systems in the practice of urban and regional planning, with a focus on land use and environmental issues. Topics covered will include data models and structures, coordinate systems and projections, thematic mapping, spatial analysis, acquisition and integration of spatial data from various sources, interoperable web mapping services, spatial data policy issues, and GIS application development. The central component is a class project covering the collection, formatting, analysis, and presentation of land use data for a Madison neighborhood utilizing the Land-Based Classification Standards developed by the American Planning Association.

An introductory course in cartography or map interpretation is recommended.

Enrollment limit – 20 students

#### Textbooks:

- Theobald, David M. 2003. GIS Concepts and ArcGIS Methods, Conservation Planning Technologies.
- Huxhold, William E., Eric M. Fowler, and Brian Parr. 2004. ArcGIS and the Digital City: A Hands-on Approach for Local Government, ESRI Press.
- O’Looney, John. 2000. Beyond Maps: GIS and Decision Making in Local Government. ESRI Press. [OPTIONAL]

#### Grading/Assignments:

Paper – GIS Application Benefits – two pages – due 3/18 (20%)

Group project – LBCS field survey methodology and time estimate – due 4/15 (35%)

Class project – LBCS data analysis and mapping – presentation 5/6 (35%)

Participation – (10%)

Office Hours: Wednesday and Friday 1:30 to 2:00 pm or by appointment

Class Web Site: <http://coastal.lic.wisc.edu/urpl969/>

Week 1

Wednesday, January 19	Course Outline, Introductions
Friday, January 21	LAB - GIS Application - Shoreland Management - Blue Lake, Oneida County

Week 2

Wednesday, January 26	What is GIS? (Theobald Ch. 1)
Friday, January 28	Data models and structures (Theobald Ch. 2)

Week 3

Wednesday, February 2	Coordinate systems and map projections (Theobald Ch. 3)
Friday, February 4	Visualization of spatial data (Theobald Ch. 4)

Week 4

Wednesday, February 9	Visualization of spatial data (continued)
Friday, February 11	Querying a map (Theobald Ch. 5)

Week 5

Wednesday, February 16	LAB – Shipwreck Mooring Site Map
Friday, February 18	Creating and editing feature data (Theobald Ch. 6)

Week 6

Wednesday, February 23	Raster basics and analysis (Theobald Ch. 7)
Friday, February 25	Single map analysis (Theobald Ch. 8)

Week 7

Wednesday, March 2	Dual map analysis and modeling (Theobald Ch. 9)
Friday, March 4	LAB – Digital City – Exercise 1

Week 8

Wednesday, March 9 (Coastal GeoTools)	LAB – Digital City – Exercise 1-continued
Friday, March 11	LAB – Digital City – Exercise 2

Week 9

Wednesday, March 16	LAB – Digital City – Exercise 3
Friday, March 18	LAB – Digital City – Exercise 3-continued GIS Application Benefits Paper Due

Week 10

Wednesday, March 23	SPRING BREAK
Friday, March 25	SPRING BREAK

Week 11

Wednesday, March 30	Land classification systems
Friday, April 1	Field methods for land classification

Week 12

Wednesday, April 6	FIELD WORK – LBCS Survey
Friday, April 8	FIELD WORK – LBCS Survey
Saturday, April 9	FIELD WORK – LBCS Survey

Week 13

Wednesday, April 13	Analysis and mapping of land use data
Friday, April 15	LAB – Class Project - LBCS database development Group Project Due - LBCS field survey methodology and time estimate

Week 14

Wednesday, April 20	Web mapping/interoperability
Friday, April 22	LAB – Class Project – LBCS data analysis and mapping

Week 15

Wednesday, April 27	Spatial data policy issues – access, privacy, sharing, metadata
Friday, April 29	LAB – Class Project – LBCS data analysis and mapping

Week 16

Wednesday, May 4	SEMINAR – Research agenda for GIS in urban and regional planning
Friday, May 6	Class Project Presentation

Revised – February 15, 2005