

# URPL 969 - Applied GIS Workshop: Land Use Inventory and Analysis

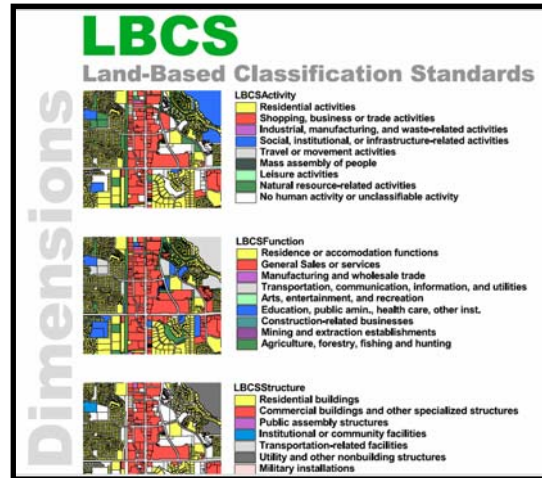
Spring 2007 -- 3 credits

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Lecture: Wednesday, 1:00-2:15 pm  
208 Old Music Hall

Lab: Friday, 1:00-2:15 pm  
URPL Computer Lab

Course Website: <http://coastal.lic.wisc.edu/urpl969-spring07/>



## Course Summary

This is an intermediate-level 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. Students will learn about cutting-edge land classification and field inventory methods, as well as GIS functionality for working with parcel maps and tax assessment data. The central component is a class project covering the collection, formatting, analysis, and presentation of land use data for a neighborhood in a Great Lakes coastal community utilizing the Land-Based Classification Standards developed by the American Planning Association. Planning issues to be addressed include the preservation of “working waterfronts” and smart growth concepts associated with the transformation of an obsolete industrial corridor into a vibrant employment center that mixes residential, commercial, and industrial uses.

## Prerequisites

An introductory course in GIS or cartography is recommended.

## Course Goals

- To understand how geographic information systems are applied to land use and environmental planning issues
- To effectively communicate the benefits of GIS applications to society
- To understand the principles of land classification and field methods to support land use inventory, including the efficiencies associated with the use of geospatial technologies
- To apply GIS to analyze land use patterns at the parcel level
- To complete a class project that supports urban planning efforts in a Great Lakes coastal community
- To learn to work effectively in a group setting
- To sharpen writing skills directed at an audience of professional planners

## **Course Activities**

- Discussions on the principles and methods of planning support systems and land classification. Topics include APA's Land-Based Classification Standards; land use inventory field methods; geospatial technologies; parcel data creation, maintenance, and data models; and GIS methods for land use analysis
- Lab exercises providing "hands-on" experience in building basic GIS applications. Application topics include shoreland management, coastal erosion, and land use analysis. Short evaluations will be completed after each exercise.
- Completion of a two-page paper on the benefits to society of a GIS application. Papers will be posted on the course web site.
- Completion of a GIS tutorial utilizing digital parcel maps and tax assessment data. Parcel maps and tax assessment data for most Great Lakes coastal counties in Wisconsin are available on a MyWebSpace group directory maintained jointly by the Robinson Map Library and the UW Sea Grant Institute.
- A group assignment to conduct a land use inventory utilizing the Land-Based Classification Standards for a study area in a Great Lakes coastal community. The case study will most likely be on the near south-side of Milwaukee. An LBCS inventory in this area would be useful to support planning efforts to preserve a working waterfront along the Inner Harbor and to help transform a largely obsolete industrial corridor into a vital mixed-use "Jobs Corridor." A report will be prepared that documents the time and effort associated with conducting the LBCS survey. An LBCS database for the study area will be prepared.
- A group assignment to conduct land use analyses within the study area. The analyses will be communicated through both a report and presentation. The reports and presentations will be posted on the course web site in order to demonstrate the range of GIS applications that can be supported by using this more sophisticated land classification scheme.

## **Readings**

### Planning Support Systems

- Brail, Richard K. and Richard E. Klosterman (Eds.). 2001. Planning Support Systems: Integrating Geographic Information Systems, Models, and Visualization Tools. Redlands, CA: ESRI Press.
- Geertman, Stan and John Stillwell (Eds). 2003. Planning Support Systems in Practice. Berlin: Springer-Verlag.

### Land Classification

- Berke, Philip R., David R. Godschalk, Edward J. Kaiser, with Daniel A. Rodriguez. 2006. Urban Land Use Planning, 5<sup>th</sup> Edition. University of Illinois Press. Ch 4, 8, 12.
- Guttenberg, Albert. 1993. The Language of Planning: Essays on the Origins and Ends of American Planning Thought. Ch 3-5.
- Guttenberg, Albert. 2002. Multidimensional Land Use Classification and How It Evolved: Reflections on a Methodological Innovation in Urban Planning. Journal of Planning History. Vol. 1. No. 4. November 2002: 311-324.

- Urban Renewal Administration, Housing and Home Finance Agency, and Bureau of Public Roads, Department of Commerce. 1965. Standard Land Use Coding Manual: A Standard System for Identifying and Coding Land Use Activities. (SLUCM). Washington, D.C.: Government Printing Office.
- Jeer, Sanjay and Barry Bain. 2000. Traditional Color Coding for Land Uses. American Planning Association.
- LBCS materials, <http://www.planning.org/lbcs>

### Parcels

- National Research Council. 1980. Need for a Multi-purpose Cadastre. Washington DC: National Academy Press.
- National Research Council. 1983. Procedures and Standards for a Multipurpose Cadastre. Washington DC: National Academy Press.
- Brown, Patricia M. and D. David Moyer. Eds. 1989. Multipurpose Land Information Systems: The Guidebook. Silver Spring, MD: Federal Geodetic Control Committee. Chapters 4, 5, 6, 9, 10, and 13.
- Cowen, David J. and Will J. Craig. 2003. "A Retrospective Look at the Need for a Multipurpose Cadastre." *Surveying and Land Information Science* 63 (4): 205-214.
- Von Meyer, Nancy. 2004. GIS and Land Records: The Parcel Data Model. Redlands, CA: ESRI Press.
- Cook, Meghan E., Sharon S. Dawes, Natalie C. Helbig, and Roger J. Lishnoff. 2005. Use of Parcel Data in New York State: A Reconnaissance Study. Albany, NY: Center for Technology in Government.
- Stage, David and Nancy von Meyer. 2004. Parcel Data and Hurricane Isabel: A Case Study. Prepared for the FGDC Cadastral Subcommittee.
- Stage, David, Nancy von Meyer, and Bob Ader. 2005. Parcel Data and Wildland Fire Management. Prepared for the FGDC Cadastral Subcommittee.
- Supporting materials for the ongoing National Research Council study titled "Land Parcel Databases: A National Vision"

### GIS

- Ormsby, Tim, Eileen Napoleon, Robert Burke, Carolyn Groessl, and Laura Feaster. 2004. Getting to Know ArcGIS Desktop: Basics of ArcView, ArcEditor, and ArcInfo. Redlands, CA: ESRI Press.
- Huxhold, William E., Eric M. Fowler, and Brian Parr. 2004. ArcGIS and the Digital City: A hands-on approach for local government. Redlands, CA: ESRI Press.
- Gorr, Wilpen, L. and Krister S. Kurland. 2005. GIS Tutorial: Workbook for ArcView 9. Redlands, CA: ESRI Press.
- Esnard, Ann-Margaret, Philip R. Berke, David R. Godschalk, and Edward J. Kaiser. 2006. Hypothetical City Workbook III: Exercises and GIS Data to Accompany Urban Land Use Planning. Champaign, IL: University of Illinois Press.

**Grading/Assignments**

Participation (5%)

GIS Exercise Evaluations (5%)

Paper – GIS Application Benefits – 2 pages (20%)

Paper – Parcel Mapping GIS Tutorial (20%)

Project – LBCS Survey Report (20%)

Project – LBCS GIS Analysis Report/Presentation (30%)

## Course Schedule

### Week 1

LECTURE – Wednesday, January 24 <sup>th</sup>	Course Outline, Introductions
LECTURE – Friday, January 26 <sup>th</sup>	Planning Support Systems

### Week 2

LECTURE - Wednesday, January 31 <sup>st</sup>	Overview of Land Classification
LAB - Friday, February 2 <sup>nd</sup>	Shoreland Management GIS Exercise

### Week 3

LECTURE - Wednesday, February 7 <sup>th</sup>	Land-Based Classification Standards
LAB - Friday, February 9 <sup>th</sup>	Coastal Erosion GIS Exercise

### Week 4

LECTURE - Wednesday, February 14 <sup>th</sup>	Land Use Inventory
LAB - Friday, February 16 <sup>th</sup>	Regent Neighborhood LBCS GIS Exercise

### Week 5

LECTURE - Wednesday, February 21 <sup>st</sup>	Parcel Data Overview
LAB - Friday, February 23 <sup>rd</sup>	GPS Exercise <b>GIS Application Paper Due</b>

### Week 6

LECTURE - Wednesday, February 28 <sup>th</sup>	Parcel Data Models
LAB - Friday, March 2 <sup>nd</sup>	Lab Time for GIS Tutorial

### Week 7

LECTURE - Wednesday, March 7 <sup>th</sup>	Coastal Management
LAB - Friday, March 9 <sup>th</sup>	Lab Time for GIS Tutorial

### Week 8

LECTURE - Wednesday, March 14 <sup>th</sup>	Working Waterfronts
LAB - Friday, March 16 <sup>th</sup>	Lab Time for GIS Tutorial

### Week 9

LECTURE - Wednesday, March 21 <sup>st</sup>	Relational Database Basics
LAB - Friday, March 23 <sup>rd</sup>	Lab Time for Parcel Mapping GIS Tutorial <b>Parcel Mapping GIS Tutorial Due</b>
FIELD TRIP – Saturday, March 24 <sup>th</sup>	Field Trip to Milwaukee

Week 10

LECTURE - Wednesday, March 28 <sup>th</sup>	LBCS Inventory work time
LAB - Friday, March 30 <sup>th</sup>	LBCS Inventory work time <b>LBCS Inventory Report and Database Due</b>

Week 11 – Week of April 2<sup>nd</sup>

	SPRING BREAK
	SPRING BREAK

Week 12

LECTURE - Wednesday, April 11 <sup>th</sup>	Project work time
LAB - Friday, April 13 <sup>th</sup>	GIS and the Land-Based Classification Standards (via WisLineWeb)

Week 13

LECTURE - Wednesday, April 18 <sup>th</sup>	Parcel Data and Wildland Fire Management (via WisLineWeb)
LAB - Friday, April 20 <sup>th</sup>	Project work time

Week 14

LECTURE - Wednesday, April 25 <sup>th</sup>	Project work time
LAB - Friday, April 27 <sup>th</sup>	Project work time

Week 15

LECTURE - Wednesday, May 2 <sup>nd</sup>	Project work time
LAB - Friday, May 4 <sup>th</sup>	Project work time

Week 16

LECTURE - Wednesday, May 9 <sup>th</sup>	Project Presentation: Campus
LAB - Friday, May 11 <sup>th</sup>	Project Presentation: Milwaukee (via WisLineWeb) <b>LBCS Analysis Project Presentation and Report Due</b>

Revised – January 23, 2007