

UPP 508 Geographic Information Systems for Planners Spring 2009

Instructors: William “Max” Dieber (maxdbr@uic.edu), Sarah Barr (sbarr3@uic.edu)

All classes meet in SEL 2058 (it can be hot...wear layers)

CRN 26683 Monday 6:00 – 9:00 pm

CRN 28979 Wednesday 6:00 – 9:00 pm

Office Hours: By Appointment (via email) is required. If you need to see us without an appointment, call 996-3860 or 413-8435 BEFORE you come down to the Urban Data Visualization Lab (UDVL) in B-15 in CUPPA Hall. If you need help with an exercise, you could also contact Adrian Esquivel at aesqui3@uic.edu. Adrian is the Research Assistant assigned in the UDVL.

Primarily, this course is about learning ArcGIS Desktop, although we will explore a range of GIS issues along the way. The SEL 2058 computers are loaded with ArcGIS 9.2 (ArcInfo level) as are the computers in the CUPPA lab. The six month demonstration version of the software packaged with the main text book, Getting to Know ArcGIS Desktop, is ArcGIS 9.3, 9.2, or 9.1 (ArcView level) depending on where you acquire the book. Last semester, the bookstore stocked books with 9.2. That is preferred. Students acquiring books through Amazon sometimes got 9.2, sometimes 9.1. Books ordered from ESRI (www.esri.com) come with 9.3 (at least that is what the ESRI website tells us). If you get a 9.1 version, DO NOT INSTALL IT BEFORE TALKING WITH US. We can help you acquire a 9.2 demo to install. This is important because not only are we teaching 9.2, but 9.1 installed along side Internet Explorer 7 will encounter problems.

Student Evaluation: Performance will be evaluated on the basis of class attendance (28 points), final project (30 points), and eight extra exercises and a map exercise (42 points).

42 points	8 Extra Exercises worth 5 points each plus a 2 point Map Exercise	Due as shown on each exercise 1 point subtracted for late exercise - “Late” means after 5pm on the due date
30 points	Final Project	Oral presentations during week 13, 14 Written report due Friday, May 1, 2009
28 points	Attendance	2 points subtracted per missed class

Usually each class will include lecture and lab. Attendance in class is expected....and attendance means all of class! Usually there is much content to cover in class so classes will promptly start at 6pm. If you are unable to attend a class, you are welcome to sit in on the corresponding class in the other section. This must be done by prior arrangement with the instructors. Refer to the schedule to understand the corresponding class dates.

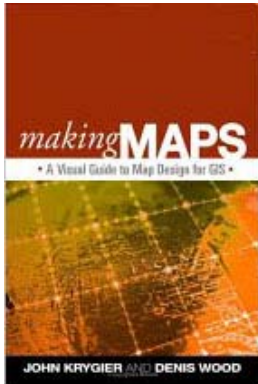
Extra Exercises are due to CUPPAH B-15 by end of day (5pm): on Friday for the class that meets on Monday; on Monday for the classes that meet on Wednesday. **We will not accept exercises via email.** If we ask you to redo an exercise (and most of you will get that

opportunity), you have two weeks from the day it is returned to you to complete it for full credit. There will be only 1 redo opportunity per exercise. A redone exercise **MUST** be handed in with your original exercise or we will be unable to grade it.

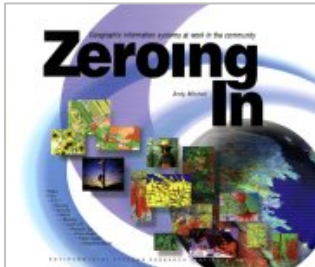
Required Books and Materials:



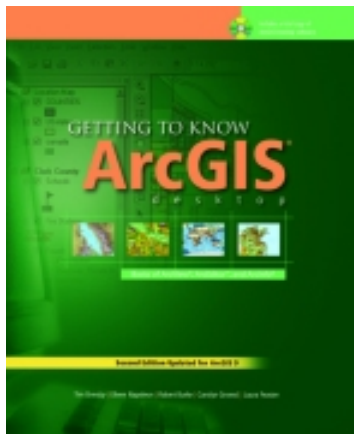
USB flash drive capable of holding at least 512 MB of data (but bigger would be better).



Krygier, Wood. 2005. *Making Maps – A Visual Guide to Map Design for GIS*. The Guilford Press, New York. ISBN: 1-59385-200-2



Mitchell. 1998. *Zeroing In – Geographic Information Systems at Work in the Community*. ESRI Press, Redlands CA. ISBN: 1-879102-50-1. A good summary of examples of things you can do with GIS.



Ormsby, Napoleon, Burke, et al. 2004. *Getting to Know ArcGIS Desktop, 2nd Edition* updated for ArcGIS 9. ESRI Press, Redlands CA. ISBN: 1-58948-083-X. Two disks are packaged with this text. One contains the exercise data (see note below on this information). The other is a 6 month ArcView version of the software. You may install this ArcView software on your personal computers. **DO NOT install it on UIC equipment.** In order to register this software easily, your computer must have internet access. MAC users...it won't work on your computers unless you have a windows operating system. Previously used versions won't install on any computer. It also will not install on computers that previously may have had the 6 month version installed. ESRI's note on the software (9.2 version) appears below:

Trial Software: Included with the book is a fully functioning 180-day trial version of ArcView 9.2 software on DVD, as well as a CD of data for working through the book's exercises. Once installed and registered, the single-use software cannot be reinstalled, and the time limit cannot be extended.

Operating System(OS): The single-use ArcGIS Demo Edition software on the CD in this edition requires the Microsoft® Windows® XP or Windows 2000 operating system.

Hardware requirements: A minimum 1GHz processing speed; 512 MB RAM; 1.5 GB free hard disk space, including 50 MB on the operating system drive; an additional 285 MB hard disk space is required for the exercise data.

The instructors have installed the software on their own laptops running Vista and have not encountered significant problems. Appropriate patches are available (see Blackboard).

Reference Books: (not required but useful)

** indicates that pdf of document is available at Q://upp508s09/library on CUPPA lab computers.

Brewer, Cynthia A. 2005. *Designing Better Maps – A Guide for GIS Users*, ESRI Press, Redlands, CA. ISBN: 1-58948-089-9

Crosier, Booth, Dalton, et al. 2004. *ArcGIS 9 – Getting Started with ArcGIS*. ESRI Press, Redlands CA. ** filename: Getting_Started_with_ArcGIS.pdf

Croswell and Wernher. 2004. *GIS Program Revenue Generation and Legal Issues in Public Sector Organizations*. Urban and Regional Information Systems Association. Park Ridge, IL. ISBN: 0-916848-32-9

ESRI Staff. 2004. *Understanding Map Projections*. ESRI Press, Redlands CA.

** filename: Understanding_Map_Projections.pdf

ESRI Staff, 2004. also on Blackboard

What is ArcGIS. ESRI Press. Redlands CA.

** filename: What_Is_ArcGIS.pdf

Harlow, Pfaff, Minami, et al. 2004. *Using ArcMap*. ESRI Press, Redlands CA.

** filename: Using_ArcMap.pdf

A very important resource

Mitchell. 1999. *ESRI Guide to GIS Analysis – Geographic Patterns and Relationships*, Volume 1. ESRI Press, Redlands CA. ISBN: 1-879102-06-4

Mitchell. 2005. *ESRI Guide to GIS Analysis – Spatial Measurements and Statistics*, Volume 2. ESRI Press, Redlands, CA. ISBN: 1-589481-16-X

O’Looney. 2000. *Beyond Maps – GIS and Decision Making in Local Government*. ESRI Press, Redlands CA. ISBN: 1-879102-79-X.

Provides useful background in understanding uses of GIS by local government; fertile place for ideas about your final projects

Thomas and Ospina. 2004. *Measuring Up – The Business Case for GIS*. ESRI Press, Redlands CA. ISBN: 1-58948-088-0 Interesting examples of use of GIS....see pp25 and 26 for project created by course instructors!

Vienneau, Bailey, Harlow, et al. 2004 *Using ArcCatalog*. ESRI Press, Redlands CA.

** filename: Using_ArcCatalog.pdf

Zeiler. 1999. *Modeling Our World – The ESRI Guide to Geodatabase Design*. ESRI Press, Redlands CA. ISBN: 1-879102-62-5

Important Notes about Data for Course

The lab portions of each class may require you to access three types of exercise data sets. These data will not be installed on the lab computers. You will have to bring it with you to class, copy them from Blackboard, or copy the needed files from another classmate during class. To do this **you will have to acquire an USB flash drive capable of holding at least 512 MB of data – although a larger capacity is highly recommended.**

Not counting the data you will compile and use for your final projects, there are three different data sets you will need to load on to your USB flash drive as the course proceeds.

1. The first supports the exercises in *Getting to Know ArcGIS*. We expect you to work through all the exercises in this book. **BEFORE THE FIRST CLASS** you should try to get these data for the exercises in Chapters 3 and 4 of *Getting to Know ArcGIS* on your USB flash drive. There are two methods to getting these data:
 - A. You could install the exercise data from the data CD contained in *Getting to Know ArcGIS* onto your personal computer (following instructions starting on page 555 of that text) and then load it on to your USB flash drive; OR
 - B. During the first class, download the Chapter 3 and 4 data from Blackboard.
2. Data for Class Exercises. These data will appear on the course's Blackboard site as they are needed in the course. Refer to the class schedule to understand what data sets are needed by class dates. You would be wise to set up your workspace for each class exercise prior to the class where that exercise will be used. We will define workspace during the first weeks of the course.
3. Data for Extra Exercises. These data will appear on the course's Blackboard site as they are needed in the course. Refer to the class schedule to understand what data sets are needed by class dates.

Schedule

The schedule appears on Blackboard and is attached here. It is highly likely that it will be adjusted as class needs evolve over the semester. Updates will appear on Blackboard so keep looking and watch for the revision date on the upper right corner of the schedule.

Working Together

The instructors believe that it is easier to comprehend and absorb the course content if you work with partners. We strongly urge you to work with your classmates both in the class/lab as well as outside of class. It is easy to get stuck in the logic of GIS operations. Partners should be able to push their way through what otherwise might be very frustrating challenges.

BUT A CAUTION: It must be evident to the instructors that the exercises you hand in are your own work. The point here is to work together to figure out how to do the exercises but *do them on your own*.

Food and Drink in the Lab

ACCC is **very** adamant about keeping food and drink out of lab. The penalties are stiff (loss of use of your netID). Keep bottles of water, munchies or whatever in your bags. If you need to take care of thirst or hunger, get up and go out to hall.

January 6, 2009

UPP 508 Spring 2009 Schedule

revision date: 3-Dec-08

CRN 26683 Monday, 6:00-9:00; CRN 28979 Wednesday
All Classes in SEL 2058 -- room is hot so dress in layers

GTK="Getting to Know GIS"; MM="Making Maps"; CE=Class Exercises; EE=Extra Exercises; ME=Map Exercises
Z=Zeroing In; UMP=Understanding Map Projections (pdf will be available on Blackboard)

Week	Day	Date	TOPIC	TOPIC DETAILS	In Class	Before Class
Wk 1	M	12-Jan-09	Course Logistics & Content	File Management, Path Names, Screen Captures	GTK Ch 3	GTK Ch 1, 2
	W	14-Jan-09	Basic Things You Need to Know Introduction to ArcGIS Interface	Exploring ArcMap & ArcCatalog & Help files	CE A	MM Ch 1
Wk 2	W	21-Jan-09	GIS Concepts	More than Maps: Spatial Reasoning	CE B	GTK Ch 4, 5, 6
	M	26-Jan-09	Getting to Know Your Data (1)	Symbolizing and Classifying		MM Ch 3, 8, 9
Wk 3	W	28-Jan-09	Getting To Know Your Data (2)	Labeling, Identifying Data, Selection by Attributes	Review EE 01	EE 01
	M	3-Feb-09	Keeping a Project Log	Intro to Logs	CE C	GTK Ch 7, 8 (to p.214)
Wk 4	W	4-Feb-09	Introduction to Final Project	Examples of Final Projects	Review EE 02	EE 02
	M	9-Feb-09	Adding to Your Data	Joins, Relates, Selection by Location	Z Review CE D	GTK Ch 9, 10 Assigned Z Chapter
Wk 5	W	11-Feb-09	Making New Data (1)	Exporting Joins and Selections	Review EE 03	EE 03
	M	16-Feb-09		Dissolving and Clipping	CE E	GTK Ch 11
Wk 6	W	18-Feb-09	Making New Data (2)	Buffers, Unions, Intersects	Review EE 04	EE 04
	M	23-Feb-09		Small Group Discussion of Proposals	CE F Proposal Discussion	GTK Ch 12 to p 323 Preliminary Proposal
Wk 7	W	25-Feb-09	Data Wrangling	Moving data from Excel to GIS	CE G	GTK Ch 12 from p 324
	R	2-Mar-09	Calculate Attribute Values	Calculating Attribute Values and Areas		Project Proposal Due
Wk 8	W	4-Mar-09	Getting To Know Your Data Even Better	Coordinate Systems, Datums, Projections	Review EE 05	EE 05
	M	9-Mar-09			CE H	GTK Ch 13 UMP MM Ch 5
Wk 9	W	11-Mar-09	Where to Find Data	Using American Factfinder & Geography Network;	Review EE 06	EE 06
	M	16-Mar-09	Metadata - What, Why, Where	Using Metadata	CE I	
Wk 10	W	18-Mar-09	Making Maps for Presentation	Layout View; Map Elements	CE J	GTK Ch 18,19
	M	30-Mar-09	Map Design			MM Ch 2, 6, 7, 10-12
Wk 11	W	1-Apr-09	Geocoding	Using Data with Addresses	CE K	EE 07
	M	6-Apr-09			ME 1	GTK Ch 17
Wk 12	W	8-Apr-09	Geodatabases	How Geodatabases are different from shape files;	Review EE 07	EE 08
	M	13-Apr-09	Simple Feature Editing	Creating Features & Editing Features	Review EE 08	GTK Ch 14 - 16
Wk 13	W	15-Apr-09	Presentation of class project			
	M	20-Apr-09				
Wk 14	W	22-Apr-09	Presentation of class project			
	M	27-Apr-09				

Final Paper Due by 5pm in CUPPAH B-15, Friday May 1, 2009