

## UPP 461 Geographic Information Systems for Planners, Spring 2011

Instructors: Max Dieber (maxdbr@uic.edu) and Yochai Eisenberg (yeisen2@uic.edu)  
Teaching Assistant: Diego Silva Ardila (dsilva4@uic.edu)

There are two sections of this course. The Monday class (CRN 31526 for undergraduates and CRN 31527 for graduate students) meets in SEL 2058 from 12:30 to 3:30. The Thursday class (CRN 31524 for undergraduates and CRN 31525 for graduate students) meets in SEL 2249F from 6 to 9.

**Office Hours:** By Appointment (via email) is required. Do not drop in to CUPPA B13 or the UDVL lab in CUPPA B15 with “a quick question” without emailing us first. We might not be there or, incredible as it may sound, we may be working on something else. In fact, Yochai works on west campus so he only is available by appointment. If you need help with an exercise, you should first contact Diego Silva Ardila at dsilva4@uic.edu. Should you require services of a tutor, we can provide you with a list of individuals that could help out.

Primarily, this course is about learning ArcGIS Desktop, although we will explore a range of GIS issues along the way. The SEL 2058 and 2249F computers are loaded with ArcGIS 9.3 (ArcInfo level) as are the computers in the CUPPA labs. The six-month demonstration version of the software packaged with the main text book, Getting to Know ArcGIS Desktop – 2<sup>nd</sup> Edition, is ArcGIS 9.3, 9.2, or 9.1 (ArcView level) depending on where you acquire the book. Get a book with version 9.3. Students acquiring books through Amazon could get 9.3, 9.2, or even 9.1 so look very carefully at the description. Used books may not have software or data but that is OK because we can help you get the software and data. Second Edition books ordered from ESRI ([www.esri.com](http://www.esri.com)) come with 9.3. If you get anything but a 9.3 version, DO NOT INSTALL IT BEFORE TALKING WITH US. We can give you version 9.3 software to install. This is important because we are teaching 9.3. We provide the data for this book as well. Special caution: ArcGIS 10 has been recently released. The third edition of the textbook Getting to Know ArcGIS Desktop focuses on it. We will not be teaching that version this spring.

**Student Evaluation:** Performance will be evaluated on the basis of class attendance (21 points), final project (37 points), and nine extra exercises and a map exercise (42 points).

42 points	9 Extra Exercises: the first 5 are worth 4 points each; the last 4 are 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
37 points	Final Project	Oral presentations during week 13, 14 Written report due Friday, Apr 29, 2011
21 points	Attendance	1.5 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 the scheduled time.

Extra Exercises are due to CUPPAH B-15 by end of day (5pm):

for Monday classes: Friday after exercise is assigned  
for Thursday classes: Tuesday after exercise is assigned  
unless we tell you otherwise.

**We will not accept exercises via email.** Drop boxes for your exercises are found outside Suite B-20 and the UDVL lab (B-15) in the basement of CUPPA Hall.

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.

All exercises handed in must have your name, section (Mon , Thurs), course number (UPP461), and date ON EVERY PAGE. Exercises that are more than one page should be stapled.

When emailing be sure to email both your instructors to insure quickest response.

Emails must have the following in subject line: your name, UPP461, section, topic of email. For example: DieberUPP461\_Mon\_EE05. Attachments to emails also need to contain your name, UPP461, section and topic. There are about 36 students across two sections so we need your help to keep emails and attachments organized.

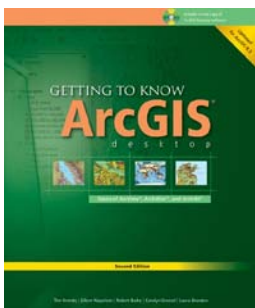
### **Required Books and Materials:**

USB flash drive capable of holding 1 Gb of data.

Krygier, Wood. 2005. *Making Maps – A Visual Guide to Map Design for GIS*. The Guilford Press, New York. ISBN: 1-59385-200-2. About \$50.

Mitchell. 1998. *Zeroing In – Geographic Information Systems at Work in the Community*. ESRI Press, Redlands CA. ISBN: 1-879102-50-1. About \$20.

A good summary of examples of things you can do with GIS.



Ormsby, Napoleon, Burke, et al. 2008. *Getting to Know ArcGIS Desktop, 2<sup>nd</sup> Edition updated for ArcGIS 9.3*. ESRI Press, Redlands CA. ISBN: 978-1-58948-210-4. About \$80. 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. A guide for installation on a MAC

can be found on the UDVL website. Previously used versions of the software won't install on any computer. ESRI's note on the software (9.3 version) appears below:

**Trial Software:** Included with the book is a fully functioning 180-day trial version of ArcView 9.3 software on DVD, as well as a CD of data for working through the book's exercises. The software has the following system requirements: Windows 2000 Professional, Windows XP (Home Edition or Professional), Windows 2003 Server, Windows Vista (Ultimate, Enterprise, Business, Home Premium); 1 GB RAM minimum, 2 GB recommended or higher; Intel Core Duo, Pentium 4 or Xeon processors (1.6GHz); 1.8 GB disk space minimum; 500 MB swap space. An additional 153 MB disk space is required for the exercise data. Once installed and registered, the single-use software cannot be reinstalled, and the time limit cannot be extended.

**Reference Books:** (not required but useful)

\*\* indicates that pdf of document is available on Blackboard > Weekly Materials > All Weeks

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

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

\*\* filename: Understanding\_Map\_Projections.pdf

ESRI Staff, 2004.

*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

Maher, Margaret M., 2010. *Lining Up Data in ArcGIS*. ESRI Press, Redlands, CA. ISBN: 978-1589482494

An excellent guide for understanding map projections in ArcGIS.

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

**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 1 Gb of data .**

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 for the chapters assigned in this book before the date the specific topics are discussed.**

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 577 of that text) and then load it on to your USB flash drive; OR
  - B. Download the GTKArcGIS 9.3 exercise 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 the class evolves 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.

### **Blackboard**

The course's Blackboard site is an important resource. In addition to the exercise data and basic information about the course, the instructors will post supporting materials, short videos on particular GIS tools, and a set of "Da Rules." You should use the discussion board to post questions for the instructors and your classmates, and to answer your classmates' questions.

### **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 and Cell Phones 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.

**Please turn off your cell phones.** Should one be audible during class, you may be asked to leave class for that afternoon or evening --- attendance points will be deducted.

# UPP 461 Spring 2011 Schedule

23-Dec-10

Monday 12:30-3:30; CRNs 31526 and 31527; SEL2058

Thursday 6-9; CRNs 31524 and 31525; SEL 2249F

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	TOPICS	TOPIC DETAILS	Do Before Class	Do In Class
Wk 1	M	10-Jan-11	Course Logistics & Content Basic Things You Need to Know Introduction to ArcGIS Interface	File Management, Path Names, Screen Captures Exploring ArcMap & ArcCatalog & Help files	GTK Ch 1,2 MM Ch 1	GTK Ch 3 EE 00 (started)
	R	13-Jan-11				
Wk 2	R	20-Jan-11	GIS Concepts Getting to Know Your Data (1)	More than Maps: Spatial Reasoning Symbolizing and Classifying	EE 00 GTK Ch 4, 5, 6 MM Ch 3, 8, 9	Review EE 00 CE B
	M	24-Jan-11				
Wk 3	R	27-Jan-11	Getting To Know Your Data (2) Keeping a Project Log	Labeling, Identifying Data, Selection by Attributes What Goes into a Project Log	EE 01 GTK Ch 7, 8 (to p.222)	Review EE 01 CE C
	M	31-Jan-11				
Wk 4	R	3-Feb-11	Zeroing In Presentations Introduction to Final Project Adding to Your Data	Examples of Final Projects Joins, Relates, Selection by Location	EE 02 GTK Ch 9, 10 Assigned Z Chapter	Review EE 02 Z Presentations CE D
	M	7-Feb-11				
Wk 5	R	10-Feb-11	Making New Data (1)	Exporting Joins and Selections Dissolving and Clipping	EE 03 GTK Ch 11	Review EE 03 CE E
	M	14-Feb-11				
Wk 6	R	17-Feb-11	Making New Data (2)	Buffers, Unions, Intersects Small Group Discussion of Proposals	EE 04 GTK Ch 12 to p 335 Preliminary Proposal	Review EE 04 CE F Proposal Discussion
	M	21-Feb-11				
Wk 7	R	24-Feb-11	Data Wrangling Calculate Attribute Values	Moving data from Excel to GIS Calculating Attribute Values and Areas	GTK Ch 12 from p 336 Project Proposal Due	CE G
	M	28-Feb-11				
Wk 8	R	3-Mar-11	Getting To Know Your Data Even Better	Coordinate Systems, Datums, Projections	EE 05 GTK Ch 13 UMP; MM Ch 5	Review EE 05 CE H
	M	7-Mar-11				
Wk 9	R	10-Mar-11	Where to Find Data Metadata - What, Why, Where	Using American Factfinder & Geography Network; Using and Finding Metadata	EE 06	Review EE 06 CE I
	M	14-Mar-11				
Wk 10	R	17-Mar-11	Making Maps for Presentation Map Design	Layout View; Map Elements	GTK Ch 18,19 MM Ch 2, 6, 7, 10-12	CE J
	M	28-Mar-11				
Wk 11	R	31-Mar-11	Geocoding	Using Data with Addresses	EE 07 GTK Ch 17	Review EE 07 ME 1 CE K
	M	4-Apr-11				
Wk 12	R	7-Apr-11	Geodatabases Simple Feature Editing	How Geodatabases are different from shape files; Creating Features & Editing Features	EE 08 GTK Ch 14 - 16	Review EE 08
	M	11-Apr-11				
Wk 13	R	14-Apr-11	Presentation of final project			
	M	18-Apr-11				
Wk 14	R	21-Apr-11	Presentation of final project			
	M	25-Apr-11				

Final Paper Due by 5pm in CUPPAH B-15, Friday 29 April 2011