UPP 462 Computer Topics in Urban Planning:
Intermediate GIS for Planners
Fall 2010
Thursday 6:00 – 9:00 pm, SEL 2058, CRN 32217 & 32218

Primary Instructors: Mirabai Auer (mauer2@uic.edu), Kevin Gibbs (kgibbs3@uic.edu)
TA: Diego Silva Ardila (dsilva4@uic.edu)

Guest Instructors: Max Dieber (maxdbr@uic.edu), Nina Savar (nsavar@uic.edu)

Office Hours: Mirabai Auer and Kevin Gibbs will be available provided an appointment is requested via email by 10 P.M. the evening before.

Mirabai: Thursday 4-6pm (UDVL)
Kevin: Tuesday 3:30-5:30pm (SEL 2058)
Diego: Monday 2-6pm, Tuesday 10am-4pm & 8-10pm, Wednesday 10am-6pm, Friday 1-5pm (by appointment only)

Philosophy and Background:

Kevin Gibbs has been at the UIC Health Policy Center since 2008 and received his MUPP from CUPPA in 1999. From 1998 to 2008 he was a GIS Coordinator for the City. Kevin served two terms on the board of the Illinois GIS Association.

Mirabai Auer is currently a Research Associate at the Center for Urban Economic Development (CUED) as well as a Sr. GIS Analyst for Join & Relate Consulting. She is also a MUPP and has worked as a data analyst/visualizer for the past 5 years in the public, private, and non-profit sectors.

Nina has worked in GIS and data "wrangling" for over 20 years. Previously employed by the Northeastern Illinois Planning Commission (NIPC), Nina starred in the role of GIS Manager, ARC/INFO specialist, and metadata evangelist.

Max Dieber served as NIPC's Research Department manager, demographer/ statistician, and ArcView specialist for 30 years.

Because of our varied experiences, we bring different points of view to many topics in this class. We constantly challenge what we know and believe these challenges strengthen our understanding of the finer points of GIS. Even more than our introductory course, this course is a collaboration between teachers and students. We all will learn from each other.

Objectives and Expectations of Course:

Our three main objectives are to instill *(1) independent working styles*, *(2) good data processing habits*, and *(3) techniques for project organization*. We reinforce topics previously taught in our introductory course and advance our GIS use by introducing several extensions, including Network Analyst and Spatial Analyst. We teach students feature editing and geodatabase structures. In addition, we apply GIS to several applications, along the way covering data collection and compilation techniques; discovering data resources; learning how to teach each other GIS topics; applying GIS to a final project of the student's

choice; pushing layouts to Adobe Illustrator for post processing; and learning about raster data. Certain topics recur throughout the course, such as geodatabases and data collection and wrangling. All students are expected to keep project logs for all work they do.

Students will become more comfortable with the ArcGIS interface after this course and feel more secure data management, online help resources, and spatial analyses. The pace of this course is fast. Because many of the lessons build upon previous assignments students are expected to meet deadlines and request assistance when necessary.

Student Evaluation: Performance will be evaluated on the basis of homework, 2 student presentations, a final project and attendance. The relative weights are listed below:

15 points	Homework	There are 10 weekly assignments. Some assignments require more significant time commitments than others and will be given more credit.
10 points	Oral Assignment 1	Finding Data for GIS
20 points	Oral Assignment 2	Special Topics in GIS
15 points	Final Project	Presentation
25 points	Final Project	Written Report
15 points	Attendance	One point awarded for each class student is present at
+5 points	Extra Credit	Attending ILGISA Conference/Assisting with GIS Day

If you cannot make a certain class, you are still responsible for the material covered. You MUST email all primary instructors ahead of time to let us know when you will miss class.

Submitting Assignments:

Unless otherwise arranged, the Drop Box in Blackboard is the only accepted method of assignment submission. Each assignment will have its own folder in this drop box. Assignments must be submitted to Blackboard by Tuesday at 5pm for work due that week. Late assignment will not be accepted. Assignments will be graded by Thursday morning. We may return assignments to you with notes and corrections using Microsoft Word's Track Changes feature. Project logs must be submitted in MS Word format. Maps must be submitted as imbedded JPG files within your project log document.

All assignments will be submitted with the following naming convention:
Upp462fall2010_Assignment[#]_Lastname_Firstname.docx

All assignments reposted to Blackboard with a grade will have the following naming convention:
Upp462fall2010_Assignment[#]_Lastname_Firstname_GRADED.docx

Required Software & Materials:

All work will be conducted using ArcGIS version 9.3 or 9.3.1 at the ArcEditor or ArcInfo license levels. We cannot support ArcGIS version 10 at this time.

ArcGIS 9.3 software is available on ACCC computers in SEL 2058 in addition to computers in the CUPPA lab and CUPPA ancillary studio space in B17. Your instructors have free student software to distribute from ESRI: *ArcView 9.3.1 and Extensions Student Edition – One-Year Education Use Only.* If you are interested

in installing this software on your personal computer, you will be responsible for uninstalling any other demo ESRI software before you can install this copy. Please see information at: http://www.esri.com/industries/university/education/student-eval_faqs.html Always use your @uic.edu email when registering with ESRI.

Additional software resources are available for download at the University of Illinois' Webstore (http://webstore.illinois.edu).

As of 14 Jan 2010, ArcGIS is installed at the following on-campus locations:
SPHPI B34
BGRC 105(24hrs west)
BGRC 105B(24hrs west)
SCE 408(east) - machines have 2GB of RAM rather than the 1GB
SELE 2058(east)
CUPPA computer lab (2nd floor)
CUPPA room B17

USB flash drive capable of holding at least 2 Gb of work.

In addition, a series of pdf's with tutorials and other information will be uploaded to Blackboard.

Online Assignments/ESRI Virtual Campus:

Many lectures are supplemented by online instruction via YouTube or at the ESRI online resource named the "Virtual Campus." Each student is responsible for completing the Virtual Campus lectures as identified in the homework schedule.

To access courses at the ESRI virtual campus:
1. Go to http://training.esri.com. Click "My Courses" > "My Virtual Campus Courses" If you already have an ESRI Global Account, log in using your username and password. If you do not, click "Create New Account." BE SURE TO USE YOUR @UIC.EDU EMAIL.

2. Start Your New Course
Click "Start a new course". If needed, type your 14-character Course Access Code in the field provided and click "Go." Follow the instructions on your screen.

3. Go To Class
From your course list, click the course title to begin.

Courses identified below with an (*) will require a code to access the lesson.

Design/Layout/Information Visualization
* Turning Data into Information Using ArcGIS 9
Getting Started with Map Templates
Making Better Map Layouts with ArcGIS

Editing
Editing in ArcGIS 9: Tips and Tricks
Editing in ArcGIS 9: Tips and Tricks II
Editing in ArcGIS 9: Tips and Tricks III
Editing in ArcGIS 9: Tips and Tricks IV

Geocoding
* Geocoding with ArcGIS Desktop

Geodatabases
* Basics of the Geodatabase Data Model
* Creating and Editing Geodatabase Features with ArcGIS Desktop
* Creating and Editing Geodatabase Topology with ArcGIS Desktop
* Creating, Editing, and Managing Geodatabases for ArcGIS Desktop

Introduction to ArcGIS Data Models
Introduction to Geodatabase Replication at ArcGIS 9.2
Working with Geodatabase Precision and Spatial Domain
Working with Geodatabase Topology

Geoprocessing (incl. w/ Model Builder)
* Geoprocessing with ArcGIS Desktop
Geoprocessing CAD Data with ArcGIS
Geoprocessing Using ModelBuilder

Labels/Annotation
* Creating and Editing Labels and Annotation
What's New in ArcGIS 9 Labeling and Annotation

Data Management
* Using ArcCatalog: Tips and Tricks
Metadata: Tips and Tricks

Web/GPS/Mashups
Publishing KML Services with ArcGIS Server 9.3
Authoring and Deploying Fast Web Maps
Introduction to ESRI MapIt
Introduction to ESRI Mobile GIS Solutions
Maximizing GPS Accuracy in GIS Data Collection
Building Mashups using the ArcGIS JavaScript APIs
Sharing Your Maps Using ArcGIS Online

Miscellaneous
Introduction to Cartographic Representations in ArcGIS 9.2
Exploring the VBA Environment
Getting Started with Scripting in ArcGIS 9
Working with CAD Data in ArcGIS 9.2
Partnering for Community Action

Network Analyst
Introduction to ArcGIS Network Analyst

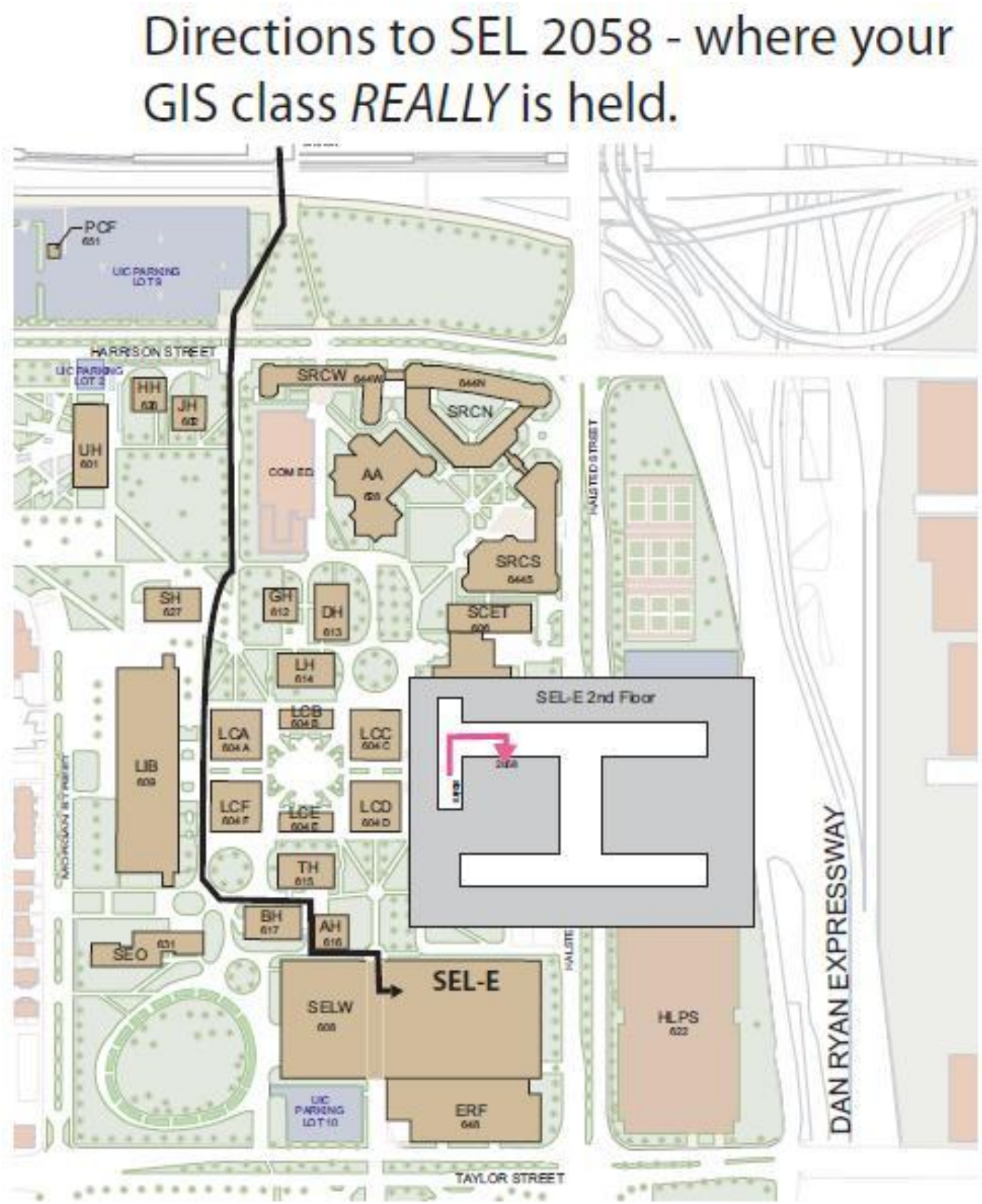
Projections/Coordinate Systems
* Understanding Map Projections and Coordinate Systems
Working with Map Projections and Coordinate Systems in ArcGIS

Spatial Analyst/Rasters
* Working with Rasters in ArcGIS Desktop
* Learning ArcGIS Spatial Analyst
* Georeferencing Rasters in ArcGIS

Spatial Statistics/Statistics
Understanding Spatial Statistics in ArcGIS 9
Regression Analysis Basics in ArcGIS 9.3

3-D Analyst
* Learning ArcGIS 3D Analyst

ClassLocation:



Special Accommodations:

Students requiring specific accommodation please contact the UIC Disability Resource Center at: 1200 W. Harrison St. 1190 SSB (MC 321) or email: drc@uic.edu (312) 413-2183 Voice or (312) 413-0123 TTY or (312) 413-7781 FAX

Video Relay Service: Call 1-866-327-8877, when asked, provide the name of the person you are trying to contact and the videophone #312-413-0123. For more information about the DRC: http://www.uic.edu/depts/oaa/disability_resources/index.html

Reference Texts:

This course does not require a textbook. The references below may be helpful but are not required.

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

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

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

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

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

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

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!

Schedule:

WEEK	DATE	TOPIC	HOMEWORK
Wk 1	8/26	Course Logistics & Content Review qualifying exercise Getting Data from CLEARMAP	1. Assignment 1 (2 points): Collect CLEARMAP data 2. ESRI Video: Basics of the Geodatabase Data Model
Wk 2	9/2	Intro to Geodatabase Address matching crime data More about data	1. Assignment 2 (2 points): Address match ClearMap crimes in Chicago 2. Virtual Campus Video: Network Analyst 3. Network Analyst Tutorial 4. Finding Data assignment
Wk 3	9/9	Network Analyst Project Logs, remember them?	1. Assignment 3 (2 points): Crime Analysis Using Network Analyst 2. Virtual Campus: Understanding Spatial Statistics in ArcGIS 9 3. Blackboard readings: Statistica.pdf 4. Where to Find Data Assignment
Wk 4	9/16	Descriptive Statistics: Spatial Statistics Toolbox	1. Assignment 4 (2points) 2. Spatial Statistics: Analyzing Spatial Distribution of Crime 3. Dengue Fever Exercise Questions 4. Virtual Campus: Creating/Editing/Managing Geodatabases 5. Virtual Campus: Understanding Map Projections
Wk 5	9/23	Geodatabases 2 Projection Review	Assignment 5 (1 point): 1. Virtual Campus: Creating/Editing/Managing Geodatabases 2. GIS Special Topics Presentations
Wk 6	9/30	**Where to Find Data:** 6 student presentations Geodatabases 3	Assignment 6 (2points): 1. Working with domains, subtypes, and annotations 2. ESRI Virtual Campus: Spatial Analyst
Wk 7	10/7	Spatial Analyst I **Georeferencing**	Assignment 7 (1 point): 1. Using ArcGIS Spatial Analyst tutorial 2. Final Project Proposal
Wk 8	10/14	Spatial Analyst II **Special GIS Topics**: 2 student-pair presentations	Assignment 8 (1 point): 1. Using ArcGIS Spatial Analyst tutorial
Wk 9	10/21	**Special GIS Topics**: 2 student-pair presentations Spatial Analyst III ILGISA Conference, Oct 20-21	Assignment 9 (1 point): 1. Prepare geodatabase for editing 2. ESRI Virtual Campus: Editing Tips and Tricks 3. ESRI Editing Tutorial 4. Guide to Editing Tools
Wk 10	10/28	Editing I Special GIS Topics: 2 student-pair presentations	Assignment 10 (1 point): 1. Editing Features
Wk 11	11/4	Editing II Spatial Adjust	No Assignment Due

Wk 12	11/11	Project management Guest presentations Batch processing Extras	No Assignment Due
Wk 13	10/18	Drop in for help or special guest presentation GIS DAY, Nov 17	No Assignment Due
Wk 14	12/2	**6 Presentations of final project**	
Wk 15	12/9	**6 Presentations of final project**	