

UPP 460: Introduction to Visualization and Geospatial Analysis Spring 2011

Tuesdays 6:00pm-9:00pm
Classroom: Taft Hall 204
Lab: SEL 2249F
CRN# 30274, 30275

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Urban Data Visualization Lab, B15

Wednesdays 10:00am-12:50pm
Classroom: ADH 2236
Lab: SEL 2249F
CRN# 32371, 32372

Office Hours by Appointment:
Tuesdays 2pm-6pm
Wednesdays 1pm-5pm
Other times by request

"...visualization has many possible meanings including concrete physical representations, mental images, and the process involved in generating either. For some, it is not visualization unless a computer is involved, for others any drawing tool can produce a visualization..." (MacEachren 2004).

Course Overview

Planners rely on the visualization of data, drawings, and maps to communicate complex information to their audience. Although charts and graphs, sketches, and paper maps are still important ways of visualizing space, place, numbers, and narratives, new developments in geographic visualization are providing planners with an array of tools to make their message clearer, more dynamic, and more inclusive.

This course is broken up into three parts. The first part of the course part will introduce spatial visualization techniques, including map design and geographic information systems. The second part will familiarize students with basic principles of composition and design, concepts which students will apply to an urban visualization project using the Adobe Suite. Finally, the third part will include a survey of information visualization presentation tools, including the use of Google Earth and ArcGIS Explorer. Themes of cultural representation and interpretation, public participation, and the power of technology will be woven throughout the course, and students are encouraged to consider these important planning dilemmas in the development of their course projects. It is the instructor's hope that students will apply the theoretical and technical skill set they develop in this course to the study of advanced visualization tools for the purpose of improving planning practice.

Course Objectives

By the end of the semester, students in this course should have accomplished the following:

- Students should understand visualization theory and visualization tools and recognize when, how, and with which audience they will be most appropriately used.
- Students should leave the course with knowledge of composition, charts and graphs, map design, cartography, and other presentation tools, and should be able to apply these concepts clearly and effectively to the visualization of major themes and challenges in the field of urban planning.
- Students should have basic skills in computer visualization tools covered by the course: Excel, Adobe Suite, ArcGIS and ArcGIS Explorer, and Google Earth.

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Course Expectations

Students are expected to attend class, and be prepared and fully engaged.

All students will be required to sign the Coursework Requirements Contract, which outlines specific instructions for submitting assignments in UPP460.

Assignments are due weekly and build on one another. Students who fail to complete assignments, miss class, or mismanage their time will likely fall behind in the course. Students should approach instructors sooner rather than later if they begin to struggle with the course material or work load. Although the course can be challenging, by the end, students will have developed a body of work that can be used for the final project, or as part of a professional portfolio.

Team work is essential to each student's success in the course. Team members will assist one another with assignments and projects throughout the course, but will turn in separate, individual work. The final presentation and product are the only pieces that will be delivered jointly.

The final grade is based on the following:

Attendance and Participation	13 points
Lab Preparedness	3 points
Extra Exercises (8)	16 points
Project I: Map Exhibit	18 points
Project II:	18 points
Project III: Final Presentation and Final Product	<u>32 points</u>
	100 points

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Required Texts

Berger, John. 1972. Ways of Seeing. London: The Penguin Group.

Few, Stephen. 2009. Now You See It: Simple Visualization Techniques for Quantitative Analysis. Oakland: Analytics Press.

Tufte, Edward. 2001. The Visual Display of Quantitative Information. Ann Arbor: Graphics Press.

Additional articles posted to the Blackboard website.

Required Materials

Paper – 1 pad of bond or newsprint no smaller than 11" x 14." The bookstore has a Seth Cole Sketch "Big Book" at \$10.99 that would be fine.

Pencils – 2H, HB

Eraser

Straight Edge – This can be a ruler, stick, anything that's 18" – 24" and has a true enough edge to draw a straight line. At around \$5, the 24" steel ruler may be the best value in the campus bookstore.

Be aware that you will also be responsible for having your assignments professionally printed.

Optional Materials (especially if you plan to get serious about visualization)

Tracing Paper - 1 pad of translucent rag tracing paper or 1 roll of "bum wad" tracing paper. The bookstore has a pad of Seth Cole Regular Tracing paper at \$9.99. The roll stock is even cheaper.

Pencils – Expand the hardnesses with F, 2B and a couple of colored pencils.

Eraser – Staedtler Mars Plastic

Triangles – 45 degree and 30/60 degree, 8" or so.

Sketchbook – Not too large, something that you are comfortable carrying often.

The campus bookstore stocks the basics. Check the Dick Blick stores if you want to explore further. Do not worry if you cannot get everything.

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Week 1: Introduction to Visualization

January 11/12

Topics:

- Course Overview
- Definitions and a Short History of Visualization
- Discussion of Final Project

Week 2: Information Visualization

January 18/19 – Meet in Lab

Readings for Today's Class:

- Few Introduction, Chapters 1 & 3, Chapters 4-9

Topics:

- Cognitive Visualization
- Simple Data Display and Analysis

Week 3: Spatial Visualization I

January 25/26

Assignments Due:

- EE01: Creating Charts in Excel 2007

Topics

- Data, Data, Data
- Team Meetings
- Introduction to Thematic Mapping
- Mental Maps

Week 4: Spatial Visualization II

February 1/2

Assignments Due:

- EE02: Oral Presentations on Map Design

Readings for Today's Class:

- Selected chapters from Krygier and Wood; Brewer; and Dent, and others TBA.

Topics:

- Map Design
- Introduction to ArcGIS

Week 5: Spatial Visualization III

February 8/9 – Meet in Lab

Assignments Due in Class:

- EE03: ArcGIS Exercises
- Be prepared for lab

Topics:

- Introduction to Illustrator
- Individual Student Check-In / Open Lab

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Week 6: Design I

February 15/16

Assignments Due:

- Project 1: Map Exhibit

Readings for Today's Class:

- TBA, readings will be posted to Blackboard

Topics:

- Introduction to Design

Week 7: Design II

February 22/23 – Meet in Lab

Assignments Due:

- EE04: Illustrator Exercise

Readings for Today's Class:

- TBA; readings will be posted to Blackboard

Topics:

- Sketching

Week 8: Design III

March 1/2 – Meet in Lab

Assignments Due in Class:

- EE05: Sketch

Readings for Today's Class:

- TBA; readings will be posted to Blackboard

Topics:

- Introduction to Photoshop and In Design

Week 9: Design IV

March 8/9 – Meet in Lab

Assignments Due:

- EE06: Photoshop Exercise
- Be prepared for lab

Readings for Today's Class:

- TBA; readings will be posted to Blackboard

Topics:

- Working with the Adobe Suite
- Individual Student Check-In / Open Lab

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Week 10: Other Visualization Methods I

March 15/16

Assignments Due:

- Project 2

Readings for Today's Class:

- Tufte Chapters 2-6

Topics:

- Data Graphics and Graphical Integrity

Week 11: Other Visualization Methods II

March 29/30 – Meet in Lab

Assignments Due:

- EE07: Written Critique of Data Graphics

Topics:

- Google Earth

Week 12: Other Visualization Methods III

April 5/6 – Meet in Lab

Topics:

- Visualization for Municipalities
- ArcGIS Explorer

Week 13: Presenting Visualizations

April 12/13 – Meet in Lab

Assignments Due:

- EE08: ArcGIS Explorer Exercises

Topics:

- The Evils of PowerPoint
- Mock Presentations

Week 14: Desk Critiques

April 19/20 – Meet in Lab

Assignments Due:

- Be prepared for Desk Critique

Topics:

- Desk Critiques

Week 15: Final Presentations

April 26/27 – Meet in Lab

Final Papers Due in hardcopy Tuesday, May 3/4 at 5:00pm in Suite B20.

This syllabus is subject to change.