ANTHRO 130D/230D, POLISCI 241S
Spatial Approaches to Social Science

Winter 2011

Tue/Thurs 11-12:30
220 Meyer (Flex Lab)
Instructors: Jonathan Rodden and Claudia Engel
Teaching Assistant: Margaret Irving

This is an introductory level course to basic concepts of spatial data and spatial analysis techniques with selected examples as they are being used in the Social Sciences. Students will acquire skills in using relevant GIS software and gain experience in collecting, managing and analyzing spatial data. They will learn to think critically about spatial data and gain the ability to apply a spatial approach to topics of social science research.

The course is organized around two major substantive themes. We will first look at questions about the spatial distribution of population characteristics and their spatial relationships. What explains the location of workers, firms, and economic activity? What explains the rise and fall of cities, suburbs, and residential segregation? What conclusions can we draw about the spatial location of income groups? We will also look at questions of boundaries and discontinuities. What are the geographical underpinnings of regionalism and political polarization? What is the role of political, natural, or imagined boundaries (like neighborhoods) for spatial processes? How do we understand a spatial dynamics that crosses boundaries, like migration/immigration? The second theme will have us take a historical analytical approach. We will look at the socio-cultural history of landscapes and cities and how those have been formed over time. How do we read historical data? What is the relationship of spatial historical patterns to the contemporary world? Throughout the course, we will play close attention to problems of causal inference in the social sciences.

The course is geared towards students with no prior knowledge of GIS. It will require extensive use of computers and software. Since much of the benefit from this course will come from working through the evidence, students are expected to spend a significant amount of time engaging with data and case studies.

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk; phone: 723-1066; web site http://studentaffairs.stanford.edu/oaed.

Software and Data

1-year student licenses for ArcGIS 10 will be distributed in class. The software is also available on all cluster machines and in the classroom. All project and class related data can be stored on a remote drive.
and accessed from anywhere. We will provide instructions on how to do this.

NOTE: A workshop on ArcGIS will be offered for students of this class during the second week of the course. While this is not required part of the class, it will provide you with the necessary basic skills to use this complex software. If you are not familiar with ArcGIS you should take this workshop in order to successfully be able to complete your term project.

**Readings**

Selected chapters from:


Books are on reserve in the library.
Additional readings (articles) will be on coursework.

**Evaluation**

The course consists of three component: (1) substantive readings, (2) hands-on labs, and (3) a term project. The final grade will be calculated as follows:

Take home assignments:
- Exploring GIS data 5% (due 1/20)
- Contextual map of project and proposal 15% (due 1/27)
- GIS analysis (I) 5% (due 2/10)
- GIS analysis (II) 10% (due 2/17)
- Historical GIS 10% (due 2/24)

GIS Project & Final Paper 35% (paper due 3/17)
Participation in discussion of readings 20%
Schedule

Week 1
**Tue, January 4: Introduction**
Course Overview
How to ask spatial questions
What is Tobler’s law, and why is it so often true?
GIS and its role in Social Science research

**Thurs, January 6**
Representing and measuring the earth surface, concepts, limitations, history
Julie Sweetkind and Patricia Carbajales on campus GIS Resources
[Gregory & Ell: Chapter 2]
[O'Sullivan & Unwin Chapter 2]

Week 2
**Tue, January 11**
Social processes in space: Historical legacies, sorting, contextual effects, and diffusion
Key challenges for spatial social science: Causal inference and modifiable areal units
[V. O. Key, Jr. 1949. *Southern Politics in State and Nation*. Chapter 1: pp 3-12]
[“The Big Sort,” *The Economist*, June 19, 2008.]

**Thurs, January 13**
Projections
[CE]

ArGIS workshops are on either Jan 13th or Jan 14th. Participation strongly encouraged.

Spatial patterns of Class, Ethnicity, and Political Preferences

Week 3
**Tue, January 18**
Cities: From the ancient world to the industrial revolution
Guest speakers: Ian Robertson and Zephyr Frank
[Papers by guest speakers]
[Henri Pirenne. 1925. “City Origins” and “Cities and European Civilization.” In *The City Reader*, pp.}

**Thurs, January 20**
GPS and Address geocoding (gpx, kml, Google Earth)
Guest: Trevor Hebert, GIS manager for Jasper Ridge (to be confirmed)
[CE]

**Week 4**

**Tue, January 25**
Urban form and the spatial structure of cities

**Thurs, January 27**
Mapping Census data (spatial hierarchies, variables, historical census, joins)
[CE]

**Week 5**

**Tue, February 1**
Segregation by race and income
Guest speaker: Sean Reardon
[Reardon, Sean and Kendra Bischoff. 2010. “Income Inequality and Income Segregation.”]

Recommended:

**Thurs, February 3**
Spatial Point patterns
[O'Sullivan & Unwin Chap 4.3-4.6 & 5.1-5.2: Point Pattern Analysis]

**Week 6**

**Tue, February 8**
Urban form, political preferences, and policy outcomes
[Jonathan Rodden, The Long Shadow of the Industrial Revolution: Geography and the Representation of the Left (book manuscript in progress)]
[Jowei Chen and Jonathan Rodden: Districting and Electoral Bias (working paper)]

**Thurs, February 10**
Working with area maps
[ESRI Guide vol 1, Chap 3: Mapping the Most and the Least]
[O'Sullivan & Unwin Chapter 7&8: Spatial Autocorrelation and Local Statistics]

Is geography fate? Spatial patterns in the past and present

**Week 7**

**Tue, February 15**
Geography and the deep historical roots of prosperity and poverty
Possible guest: Alberto Diaz-Cayeros

**Thurs, February 17**
Historical maps (georeferencing, digitizing)
PROJECT REVIEW (in class)
[CE]

**Week 8**

**Tue, February 22**
PROJECT REVIEW (in class) -- continued
Geography, GIS, and causal inference
Geography, ethnicity, and conflict
Guest: Ken Schultz
[Ken Schultz and Alex Lee. Title TBA]
[Reread Ananat and Washington from week 5, focusing on railroads as a tool for causal identification].
[Ryan Enos. 2010. What tearing down public housing projects teaches us about the effect of racial threat on political participation.” Working paper, Harvard University.]

**Thurs, February 24**
Remote sensing, raster analysis, landcover
[Lillesand et al Chap 1 Concepts and Foundations of Remote Sensing]
[Bolstad Chap 10: Topics in Raster Analysis]
Week 9

Tue, March 1
Using remote sensing in the social sciences
Guest: Nicholai Lidow
[Nicholai Lidow, Civilian Abuse and Rebel Governance: Comparing Liberia’s Rebels using Satellite Data]

Thurs, March 3
Map algebra, DEMs, Terrain analysis
[Bolstad Chap 11: Terrain Analysis]
[Demer Chap 10: Statistical Surfaces]

Week 10

Tue, March 8

Thurs, March 10 Presentations