

ANTHRO 130D/230D, POLISCI 241S, URBANST 124
Spatial Approaches to Social Science

Winter 2018

Tue/Thurs 9-10:30am

Lathrop 190

Instructors: Jonathan Rodden and Claudia Engel

Teaching Assistant: Erica Knox

Office Hours:

Rodden – Tuesdays, 4:30 PM - 6 PM, Encina Hall, Room 444.

Engel – by appointment (cengel@stanford.edu)

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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/oea>.

Software and Data

ArcGIS 10 student licenses for use on personal computers are available through Branner Library (software is Windows only). ArcGIS is also available on all cluster machines and in the classroom. All project and class related data will be stored on a remote external drive and can be accessed from anywhere. We will provide instructions on how to do this.

NOTE: An introductory 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 **it is highly recommended** you take this workshop in order to successfully be able to complete the coursework.

Readings

Articles for each week are on Coursework.

Chapters from:

Engel, C: Spatial Approaches to Social Science - An Introduction to Basic Concepts (Draft)

Selected chapters from:

O'Sullivan, D & D Unwin (2010): Geographic Information Analysis 2nd ed. Wiley & Sons.

Book on reserve in the library.

Assessment

The course consists of substantive readings, in-class labs, a spatial analysis assignment and a term project. The final grade will be calculated as follows:

Contextual map and 1-page term project proposal	15%	(due 2/8)
Spatial analysis take-home assignment	25%	(due 2/20)
Term project & Final paper	40%	(presentation 3/15, paper due 3/22)
Participation in labs and discussion of readings	20%	

Week 1

Tue, January 9:

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 11

Intro to GIS: Raster and vector type, basic concepts and conventions in GIS tools

Representing and measuring geographic space and spatial events, concepts, limitations, history

[Engel: Chapter 1 - 3]

[Optional: M. Reba, F. Reitsma & K. Seto 2016: Spatializing 6,000 years of global urbanization from 3700 BC to AD 2000, *Scientific Data* 3, Art. no: 160034 doi:10.1038/sdata.2016.34 <https://www.nature.com/articles/sdata201634.pdf>]

Week 2

ArGIS workshops are TBD. Participation strongly encouraged.

Branner Library staff will visit the class this week and provide introduction to campus GIS Resources.

Tue, January 16

Agglomeration Effects and the Rise of Cities

[V. Gordon Childe. 1950. "The Urban Revolution." In Richard LeGates and Frederic Stout, eds., 2000. *The City Reader*, pp. 22-30.]

[Henri Pirenne. 1925. "City Origins" and "Cities and European Civilization." In *The City Reader*, pp. 38-45.]

[Stuart Rosenthal and William Strange. 2004. Evidence on the Nature and sources of Agglomeration Economies. In Henderson and Thisse, eds., *Handbook of Regional and Urban Economics* vol. 4, Elsevier.: Pages 2132 – 2162.]

[William Cronon. 1992. *Nature's Metropolis*. New York: W.W. Norton. Chs. 1, 2, and 6.]

Thurs, January 18

The history of global urbanization: geographic projections

[Engel: Chapter 4]

Week 3

Tue, January 23

Urban form and the spatial structure of cities

[Friedrich Engels. 1845. "The Great Towns" from *The Condition of the Working Class in England in 1844*. In *The City Reader*, pp. 46-55.]

[Alex Anas, Richard Arnott, and Kenneth Small. 1998. "Urban Spatial Structure." *Journal of Economic Literature* 36(3): 1426-1464.]

[Peter Mieszkowski and Edwin Mills. 1993. "The Causes of Metropolitan Suburbanization." *Journal of Economic Perspectives* 7(3): 135-147.]

[Jonathan Rodden. 2018. *Why Cities Lose: Geography and the Representation of the Left*. Chapter 5]

[Wouter P.C. van Gent, Elmar Jansen, and Joost Smits. 2014. "Right-wing Radical Populism in City and Suburbs: An Electoral Geography of the Partij Voor Vriheid in the Netherlands." *Urban Studies* 51, 9: 1775-1794.]

Thurs, January 25

Mapping neighborhoods: address geocoding and point locations

[Engel: Chapter 5]

Week 4

Tue, January 30

Segregation and sorting

[David Cutler and Edward Glaeser. "The Rise and Decline of the American Ghetto." *The Journal of Political Economy* 107, 3: pp. 455-506.]

[Reardon, Sean and Kendra Bischoff. 2011. "Growth in the Residential Segregation of Families by Income, 1970-2009."]

[Schelling, Thomas. 1969. "Models of Segregation." *American Economic Review* 59, 2: pp. 488-493.]

[Clayton Nall and Jonathan Mummolo, "Why Partisans Don't Sort: How Neighborhood Quality Concerns Limit Americans' Pursuit of Like-Minded Neighbors."]

[Jonathan Rodden: "Is Segregation the Problem in Ferguson?" *Washington Post*, August 18, 2014.]

Recommended:

[David Cutler, Edward Glaeser, and Jacob Vigdor. 2008. "When are ghettos bad? Lessons from immigrant segregation in the United States." *Journal of Urban Economics* 63,3: 759-774.]

Thurs, February 1

Mapping populations: aggregation and spatial hierarchies, attribute joins, historical census

[Engel: Chapter 6]

Week 5

Tue, February 6

Neighborhood and Contextual Effects

[Raj Chetty and Nathaniel Hendren. 2017. "The Impact of Neighborhoods on Intergenerational Mobility: Childhood Exposure Effects and County-Level Estimates." NBER].

[Ryan Ryan Enos. 2017. *The Space Between Us: Social Geography and Politics*. Cambridge University Press. Chapters 1-6.]

Thurs, February 8

The significance of spatial clusters: Point Patterns and Areal Patterns

[O'Sullivan & Unwin Chapters 4.3-4.6 & 5.1-5.2; Chapters 7&8]

[CONTEXTUAL MAP AND PROJECT PROPOSAL DUE ON FEBRUARY 8]

Week 6

Tue, February 13

Geography, Political Preferences, and Representation

[Jonathan Rodden. 2018. *Why Cities Lose: Geography and the Representation of the Left*. Forthcoming, Basic Books].

Thurs, February 15

Digital elevation models and terrain analysis

[Engel: Chapter 10]

Week 7

Tue, February 20

[MID-TERM WRITING ASSIGNMENT DUE FEBRUARY 20]

Speaker: Google Street View and Deep Learning.

Thurs, February 22

Urban sprawl: Raster analysis, land cover, and remote sensing

[Engel: Chapter 11]

Week 8

Tue, February 27

Project peer reviews

Thurs, March 1

Project peer reviews

Week 9

Tue, March 6

Geography and Historical Legacies

[Stanley Engerman and Kenneth Sokoloff. 1997. "Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies." In Stephen Haber, ed., *How Latin America Fell Behind*, pp. 260-302.]

[Avidit Acharya, Matthew Blackwell, and Maya Sen. "The Political Legacy of American Slavery." Chapters from forthcoming book manuscript.]

[Nathan Nunn and Leonard Wantchekon. 2011. "The Slave Trade and the Origins of Mistrust in Africa." *American Economic Review* 107(7): 3221-3252.]

Speakers Scott Bailey and Javier de la Rosa: Histonets

Thurs, March 8

Mapping networks: georeferencing and digitizing

[Engel: Chapter 7]

Week 10

Tue, March 13

In-class project work

Thurs, March 15

Digital poster presentations

[FINAL PAPER DUE 3/22]

Digital Poster Presentations