

GIS & Social Research

SYA 6356/SYD 4610

Spring 2008

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What it's about

This course focuses on applications of GIS in social research. It presents critical perspectives on GIS, space, place, and cartography, and applies GIS to social-research issues in the context of these perspectives. Class sessions will combine discussion of assigned readings with lab exercises that are geared to building GIS skills in general and GIS social-research skills in particular (including introductory social spatial statistics).

GIS software: The principal course software will be *ArcGIS 9.2*, which is loaded on the GL GIS-lab computers and is available as a 6-month CD-rom in Gorr/Kurland, *GIS Tutorial: Workbook for ArcView 9* (Updated for ArcGIS 9.2; ESRI Press), or in Ormsby et al., *Getting to Know ArcGIS*. Students should have access to ArcGIS 9.2 for work outside the lab and are responsible for keeping backups of their course work.

The course will also use the following software: *GeoDa*, which is loaded on the GL GIS-lab computers and is downloadable for free (see below); and (for graduate students with backgrounds in statistics) *Geographically Weighted Regression*, which is available from the instructors and is located on some of the GIS-lab computers.

GIS Exercises & Readings: The main source of the course's exercises is the required book, Gorr/Kurland, *GIS Tutorial: Workbook for ArcView 9*. There are some additional exercises as well, including a project on sustainability/socio-spatial issues in South Florida. The other readings are available by means of a course reader, the internet, the FIU library, and instructor-loaned books and articles. Recommended books include Longley et al., *Geographic Information Systems and Science*; Peters & MacDonald, *Unlocking the Census with ArcGIS*; LeGates, *Think Globally, Act*

Regionally; Pamuk, *Mapping Global Cities*; Maantay & Ziegler, *GIS for the Urban Environment*; Kennedy, *Data in Three Dimension: A Guide to ArcGIS 3D Analyst*; Mitchell, *The ESRI Guide to GIS analysis, vol. 1, Geographic Patterns and Relationships*; Mitchell, *The ESRI Guide to GIS analysis, vol. 2, Spatial Measurements and Statistics*; and Brewer, *Designing Better Maps: A Guide for GIS Users*.

Grading:

- *20% of final grade:* Attendance and punctuality. Punctual attendance at 90-100% of the semester's class sessions, "A"; 80-89%, "B"; 70-79%, "C"; 60-69%, "D"; and 59% or less, "F."
- *60% of final grade:* Students will complete weekly exercises concerning GIS and social research, each of which will contribute equally to the final grade. The exercises will be done both in and outside class. Final grades will be based on the percentage of the semester's total number of assignments that the student completes adequately: 90-100%, "A"; 80-89%, "B"; 70-79%, "C"; 60-69%, "D"; and 59% or less, "F."
- *20% of final grade:* Students will work together and with the instructors on a class-wide project that will span from roughly the ninth week of class to the semester's end. Grading criteria will be discussed in class.

Tentative Schedule

Week 1: Introductory Features of ArcView

Classwork: Overview & Gorr/Kurland, Tutorial 1, pages 1-38.

Homework: Gorr/Kurland, Exercise Assignments 1-1 & 1-2.

Overview of GIS social applications:

PolicyLink, Community Mapping

<http://www.policylink.org/EDTK/Mapping/default.html>

Practicing Anthropology, Issue on "Mapping Communities: Strengthening Research through Participatory GIS" (Fall 2007)

Sonoran Institute, Community-based Conservation

<http://www.esri.com/news/arcuser/1005/newwest1of2.html>

Baltimore Ecosystem Study

<http://www.beslter.org/index.html>

http://www.beslter.org/frame7-page_9.html

Week 2: Map Design

Reading:

- Roy and Ahmed, "Space," chapter 3 in Roy, *Making Societies: The Historical Construction of Our World*

Classwork: Gorr/Kurland, Tutorial 2 (pages 43-73)

Due at start of next week's class: Gorr/Kurland, Exercise Assignments 2-1 & 2-2

(Recommended: Brewer, *Designing Better Maps*)

Week 3: GIS Outputs

Reading:

- Kwan, "Feminist Visualization: Re-envisioning GIS as a Method in Feminist geographic research"
http://www.blackwellpublishing.com/content/BPL/Images/Journal_Samples/A/NNA0004-5608~92~4~309%5C309.pdf
- McLafferty, "Mapping Women's Worlds: Knowledge, Power, and the Bounds of GIS." *Gender, Place and Culture: A Journal of Feminist Geography* 9/3 (2002), 263-69
http://maximus.cvm.uiuc.edu/vp560/Readings_pdf/gpc_mclaff.pdf

Classwork: Gorr/Kurland, Tutorial 3 (pages 77-103)

Homework: Gorr/Kurland, Exercise Assignments 3-1 & 3-2

(Recommended: Brewer, *Designing Better Maps*)

Week 4: Geodatabases

Reading:

- Graham, "Surveillant Simulation and the City"
<http://www.ncgia.ucsb.edu/conf/BALTIMORE/authors/graham/paper.htm>

Classwork: Gorr/Kurland, Tutorial 4 (pages 107-135)

Homework: Gorr/Kurland, Exercise Assignments 4-1 & 4-2

Week 5: Importing Spatial and Attribute Data

Classwork: Gorr/Kurland, Tutorial 5 (pages 141-85)

Homework: Gorr/Kurland, Exercise Assignments 5-1 & 5-2

Week 6: Geocoding

Classwork: Gorr/Kurland, Tutorial 7 (pages 229-65)

Homework: Gorr/Kurland, Exercise Assignments 7-1 & 7-2

Week 7: Spatial Data Processing

Reading:

- Pamuk, *Mapping Global Cities*, chap. 1

Classwork: Gorr/Kurland, Tutorial 8 (pages 269-97)

Homework: Gorr/Kurland, Exercise Assignments 8-1 & 8-2

Week 8: Spatial Analysis

Reading:

- Pamuk, *Mapping Global Cities*, chaps. 2 & 3

Classwork: Gorr/Kurland, Tutorial 9 (pages 303-32)

Homework: Gorr/Kurland, Exercise Assignment 9-1 & 9-2

Week 9: Spatial Analyst (Raster data) Extension

Classwork: LeGates, *Think Globally, Act Regionally*, Exercises 3 & 4

Homework: complete exercises.

Week 10: 3D Analyst Extension

Classwork: Kennedy, *Data in Three Dimensions*, chap. 1, Exercises 1 & 2; chap. 2, Exercises 1-7

Homework: Complete exercises.

Week 11: Class Project Assignment & 3D Analyst Extension (continued)

Reading:

- Southworth and Steppan-Norris, "The Geography of Class in an Industrial American City: Connections between Workplace and Neighborhood Politics." *Social Problems* 50/3 (2003)

Classwork: Class project assignment

Homework: (1) Kennedy, *Data in Three Dimensions*, chap. 5, Exercises 1-3; and (2) class project assignment

Week 12: Spatial Statistics/GeoDa & Class Project

Reading & workbook:

- Anselin, 'GeoDa: An Introduction to Spatial Analysis'
sal.agecon.uiuc.edu/pdf/geodaGA.pdf
- 'Exploring Data with GeoDa: A Workbook'
sal.agecon.uiuc.edu/geoda_main.php

Classwork: (1) Exercises on Spatial Statistics/GeoDa; and (2) Class project assignment

(Recommended: Mitchell, *The ESRI Guide to GIS analysis*, vol. 2, *Spatial Measurements & Statistics*)

Homework: (1) Complete exercises on spatial statistics/GeoDa; and (2) class project assignment

Week 13: Geographically Weighted Regression

Classwork: (1) Exercises on GWR & Mapping; and (2) class project assignment

(Recommended: Fotheringham et al., *Geographically Weighted Regression*)

Homework: (1) Class project assignment; and (2) complete GWR exercises (optional)

GWR website
www.nuim.ie/ncg/GWR/

Week 14: Class Project Assignment

Reading:

- Pavlovskaya, "Theorizing with GIS: A Tool for Critical Geographies?" *Environment and Planning A* (forthcoming)
<http://www.geography.hunter.cuny.edu/~mpavlov/Articles/Pavlovskaya%202005%20Theorizing%20with%20GIS.pdf>

Classwork & homework: Class project assignment

Week 15: Class Project Assignment

Classwork & homework: Class project assignment