

GEOG 3340: Introduction to Human Geography Research

Lecture 1: Course Overview

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Course overview

- The function of this course is to provide students with a comprehensive overview of the central components involved in developing a geographic research project with a particular focus on application of GIS in human geography research.
- We will draw from other disciplines such as sociology, demography and public health for methodological insights, but our goal is to focus our attention on approaches that are particularly appropriate to geography. Thus, one of our goals will be to explore how to translate abstract concepts like **scale, region, place, spatial interaction, and mobility** into viable field methods.
- The students will explore how a topic is selected, relevant literature for developing a project idea, the range of methods that can be utilized, and the production of a research report.



Course overview

- The course will give students an appreciation of and facility with the kinds of research methodologies and techniques employed by human geographers. Examples of the methodological issues that will be covered in this class include:
 - ▶ questionnaire design
 - ▶ secondary data sources (e.g., survey data, social media),
 - ▶ reviews of literature,
 - ▶ descriptive and inferential statistics,
 - ▶ geographic Information Systems (GIS),
 - ▶ spatial analysis,
 - ▶ interviewing process



Course objectives

The primary objective of this course is to provide students with the necessary skills to conduct independent research. Exemplar research conducted in the following fields of social science will be reviewed and analyzed.

- public health
- social vulnerability to disaster, environmental justice
- human mobility, segregation, accessibility
- digital humanities



Expected outcome

After completing this course, the undergraduate students of this class are expected to be able to:

- Formulate real-world problems in the context of human geography research
- Apply quantitative and qualitative research analysis tools to various research problems.
- Apply computer technologies (open-source or commercial) to conduct necessary analysis.
- Create a research proposal, and communicate the result findings in the form of writing and presentation.



Readings

Although no textbook is required for this class, the following books will be frequently referred to for some topics of this class. Additional readings and handouts will be suggested as the class progresses.

- Phillips, Richard & Johns, Jennifer(2012), *Field Work for Human Geography*, SAGE Publications.
- O'Sullivan, David and David J. Unwin (2010), *Geographic Information Analysis, 2nd Edition*, John Wiley & Sons.
- Cromley, E. K., & McLafferty, S. L. (2011). GIS and public health. Guilford Press.
- Mitchell, A. (2009), *The ESRI Guide to GIS Analysis, vol. 2: spatial measurements and statistics*, ESRI Press.



Grading

Each exam, lab exercise and final project is worth **100** points, and the final points will be a combination of these three elements according to the following weights:

- one written exams: 30%
- lab exercises or reception papers: 30%
- final project proposal (10 %), presentation (10%) and paper (15%) : 40%

To ensure a specific grade in this course you must meet the following minimum requirements: A - 90%, B - 80%, C - 70%, D - 60%.



Course Outline

See the outline in the syllabus.



Next...

Toward Spatially Integrated Social Science



Context Dependence in the Social Sciences

- Social sciences focus on interdependence among people & groups, grounded in place, space, & time
- A “spatial turn” in the social sciences, or adding space to social science theory; popularized by increasing penetration of spatial technologies:
 - ▶ GIS, GPS, remote sensing, spatial analysis, Google Earth/Maps, mobile phones, ...
- Applications of spatial thinking & spatial concepts in the social sciences are seen as aids to understanding social patterns & processes



- **Location:** Understanding formal & informal methods of specifying where
- **Distance:** The ability to reason from knowledge of relative position
- **Network:** Understanding the importance of connections
- **Neighborhood & Region:** Drawing inferences from spatial context
- **Overlays:** Inferring spatial associations by comparing mapped variables by locations
- **Scale:** Understanding spatial scale & its significance
- **Spatial Heterogeneity:** The implications of spatial variability
- **Spatial Dependence:** Understanding relationships across space (Toblers First Law)
- **Objects & Fields:** Viewing phenomena as continuous in space-time or as discrete



Integrating Spatial Concepts for Social Sciences Research

Applications in the social sciences generally integrate multiple spatial concepts simultaneously to engage general types of spatial reasoning to:

- detect changes in the uses of, & regionalization of, space(s)
- measure physical arrangements and clustering of phenomena to identify spatial patterns
- document spatial patterns over time to infer processes
- study flows (e.g., migration, trade, & shopping patterns) between specific locations as indicators of spatiotemporal interactions
- measure spatial (and space-time) associations to test hypotheses



Example Spatial Problems in the Social Sciences

- GIS overlays of neighborhood population characteristics, levels of toxic emissions, & proximity to noxious facilities (e.g., a waste incinerator) may be used to evaluate evidence of social or environmental injustice
- Analysis of spatial dependence in cross sectional data can reveal insights into the spatial scale of causal mechanisms in domains as diverse as crime, housing markets, & job access. For example, how do car burglaries & acts of criminal violence relate to distances from clusters of liquor or drug outlets?
- Researchers may reflect on correlations of individual activity behavior (from space time diaries) with levels of obesity and the presence of park space or land use structures that encourage walking
- Spatial dependencies in party voting tendencies at the precinct level may reflect the sense of shared community expectations & the spatial patterns of interpersonal networks.
- Indices of segregation among ethnic & racial groups based on small area data (e.g., census block groups) may change over time to reflect trends in social mobility, immigration, or other factors



Reading for this week:

- Goodchild, M. F., Anselin, L., Appelbaum, R. P., & Harthorn, B. H. (2000). Toward spatially integrated social science. *International Regional Science Review*, 23(2), 139-159.