

# Socio-Technical Mapping and the Built Environment

Needed: Course Designator and Number

## Course Information

This course introduces students to the social and technical histories of built environments and the impacts (past and present) of socio-cultural biases on technical decision frameworks. Using readings, group discussions, research and spatial mapping tools, students will develop skills in exploring, identifying and documenting ways that built environments can either facilitate or constrain access to resources, including health. Previous experience with GIS is not required.

Gen. Ed.: Quant. Literacy and Social Contexts and Institutions (pending). | 3 cr.

Course is structured with one synchronous meeting period (75 min.) and one asynchronous GIS lab period (75 min.) per week. Synchronous meeting period is blended online allowing for either in-person or video conference attendance. GIS lab is asynchronous.

Course will make use of Brightspace for posting and sharing content and Zoom for video conference attendance. [Needed: Computer Requirements for GIS Access](#)

## Faculty Information

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## Instructional Materials and Methods

No textbook required; Discussion content will be made available weekly in Brightspace; GIS course resources available for download (free):

- ArcGIS Online <http://www.arcgis.com>;
- The ArcGIS book and Instructional Guide <https://learn.arcgis.com/en/arcgis-book-series/>;
- GIS in Social Sciences <https://www.esri.com/library/bestpractices/social-sciences.pdf>

## **Course Goals:**

The goal of this course is to introduce students to the following concepts:

- the social and the technical histories of built environments are linked;
- cultural biases in society create – and are mappable in – urban landscapes; and
- cultural biases create differences in access to resources – including health – as the result of decisions made in the building and shaping of urban environments.

We will approach these concepts from multiple vantages, including use of spatial mapping tools, to build our understanding of urban land- and cityscapes of interest.

## **Instructional Objectives:**

- Students will gain hands-on familiarity with geo-spatial mapping tools (GIS) .
- Students will gain hands-on familiarity with types of downloadable, publicly-available information that can be combined with GIS to tell stories of place.
- Students will gain skills in creating presentation-style GIS products (Story Maps)
- Through readings, class discussion and map-making exercises, students will gain broad understanding of:
  - major socio-cultural trends and movements that have shaped the current U.S. urban landscape;
  - the impact of these trends and movements on access disparities within communities; and
  - the link between disparities in access and disparities in health.

## **Student Learning Outcomes:**

- Students will gain skills in interpreting, presenting and combining multiple types of information in ways that use maps, graphs and visualizations to tell a more nuanced story of place.
- Students will gain skills in presenting and explaining mapped content in ways that guide viewers/readers/audiences to see underlying patterns and relationships in mapped content.
- Students will gain skills in identifying, describing and critically analyzing the social and cultural impacts of technical decisions in our society.
- Students will develop ‘nested understanding’ of how social forces create measurable and mappable differences in health for different neighborhoods within cities.

## Course Expectations and Grading

### GIS Lab

- Weekly asynchronous assignments using ArcGIS to complete. Students will submit links to final assignments, certificates of completion for assignments or accompanying worksheets, as relevant.
- Quizzes - four (4) quizzes over the course of the semester from information in the text or GIS Lab exercises.
- GeoInquiries - three map-making assignments over the course of the semester to practice and apply course concepts and ArcGIS skills. GeoInquiry assignments will be completed and submitted as small group exercises.

### Class Discussion/Content

- Weekly Perspective Readings and Class Discussion - Students will rotate responsibility to facilitate class discussion applying materials found through research and development of content for individual Final Projects.
- Final Project - Students will individually create a GeoInquiry Story Map focused on infrastructural frameworks and neighborhood-scale access disparities in a selected city. Final project includes class presentation of Story Map.

### Additional Out of Class Assignment

Students will keep a personal reflections journal; journals are collected and reviewed 3× during the semester. This is a course about integrating different types of information into knowledge; spending time reflecting on your perceptions about what we discuss in class and how we build understanding of why cities are structured as they are is useful for building your larger understanding of U.S. history and where/how you may see yourself and your role in public engagement.

### Course Grading

- Individual Final Mapping Project - 10% (draft); 20% (final)
- Team GeoInquiries - 15% (5% each)
- GIS Assignments and Quizzes - 15%
- Class Discussion - Facilitation | Participation - 15%
- Final Project Presentation - 15%
- Personal Reflection Journal - 10%

## Course Schedule:

| <u>Week(s)</u> | <u>Topics for Perspective Readings   Discussion</u>  |
|----------------|--|
| 1              | Introduction   Course Structure                      |
| 2-3            | Underpinnings and Natural Environments               |
| 4-5            | Infrastructure and Historical Framing                |
| 6-7            | Exploring Patterns and Overlays                      |
| 8              | Exploring Demographics                               |
| 9              | Break Week   |
| 10             | Social Determinants of Health                        |
| 11             | Human Ecology  |
| 12-13          | Vulnerability Indices and Health Mapping             |
| 14             | Resistance Spaces, Challenge Spaces, Solution Spaces |
| 15             | Final Projects Due   Project Presentations           |

## Course Policies

### Valuing, Recognizing, and Encouraging Diversity, Equity, and Inclusion

Promoting and valuing diversity in the classroom enriches learning and broadens everyone's perspectives. Inclusion and tolerance can lead to respect for others and their opinions and is critical to maximizing the learning that we expect in this course. Our own closely held ideas and personal comfort zones may be challenged. The results, however, create a sense of community and promote excellence in the learning environment. Diversity includes consideration of: 1) the variety of life experiences others have had, and 2) factors related to "diversity of presence," including, age, economic circumstances, ethnic identification, disability, gender, geographic origin, race, religion, sexual orientation, social position. This class will follow principles of inclusion, respect, tolerance, and acceptance that support the values of diversity.

### Classroom Community Expectations

In this course, we will address a range of topics that can be difficult to discuss. For this reason, please approach both our course materials and our class discussions with an open mind. Always express agreement, disagreement, and debates with classmates in a civil manner. Similarly, be willing to listen to peers and faculty when they disagree with you or present a different viewpoint and refrain from interrupting your classmates. There is a zero tolerance policy for harmful behavior or speech in this class.