

# GEOGRAPHY 597 – BIG DATA & PLACE: PUTTING BIG DATA IN ITS PLACE AND PLACE IN ITS BIG DATA



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**GEOG 597 Big Data & Place (3)** Conceptual and project-based seminar on the implications and applications of *Big Data* for the creation, study, and understanding of geographical scale *Place*.

**Big Data** is a term used to characterize what NSF has called “unprecedented amounts and types of data”; it is a term that describes not only very large data sources, but data that are diverse, distributed and heterogeneous.

**Place** is a multifaceted concept that has many definitions. It has been characterized as locations of activity that are connected to other such locations; settings where everyday life activities take place; communities or landscapes with which people have emotional attachments, and more. A common component of place conceptualization is that place is dynamic and interconnected.

## Course Description:

A tension exists in the discipline of Geography between the concepts of *space* and *place*. Most research and development in Geographical Information Science (GIScience) has been focused on the former, through methods to formally structure data about the world and to systematically model and analyze aspects of the world as represented through those structured data. People, however, live and behave in socially constructed *places* and what they care about happens in those *places* rather than in some abstract, modeled *space*. Study of place, by human geographers (and other social scientists and humanist scholars), typically using qualitative methods and seldom relying on digital data, has proceeded largely independently of GIScience research focused on space. There have been recent calls within GIScience to formalize place to enable application of Geographical Information Systems methods to place-based problems. While some progress in this direction has been made, that progress has been rudimentary and incremental.

An opportunity exists, through big data and related technologies that leverage it, to address the nearly infinite complexity of place and its multifaceted connectedness. The challenge that must be met in order to take advantage of the big data opportunity is to develop strategies and methods to reason about human concerns with place that are potentially represented within the complexity of big data. Big Data (particularly technologies that generate social-individual data on mobile/wareable devices) also has a range of under-researched, but potentially profound, implications for the nature and meaning of places in which people live and interact.

In this seminar, we will leverage thinking from social sciences and humanities related to understanding place as a complex and dynamic concept/phenomenon as well as that from GIScience, Data Science, and Visual Analytics focused on leveraging place-based big data to understand the world. More specifically, the seminar will address two core topics: (1) *what are the implications of Big Data for creation of and behavior in places?* (2) *what are the application of Big Data for understanding and making decisions about places?* We will treat ‘place’ as a first class object of attention by capitalizing on the combination of “big data” and visual/analytical/computational methods to enable understanding of the complexity inherent in place as both a concept and a dynamic and interconnected context for human behavior. In parallel, we will focus attention on the evolving conceptualizations of place in geography and related domains and consider how a range of technologies, the data they generate, and the connections they enable impact place.

Course goals are for students to: (1) develop a comprehensive understanding of “place” as an object of study and the range of implications and applications of Big Data for place creation and understanding; and (2) apply that understanding to a tightly focused place-centric research problem addressed through a term project. Term projects may involve: *applying existing analytical/computational methods and tools to leveraging big data to address important place-based questions; conducting a deep review of existing literature related to big data and place; investigating the implications of big data for place (using any appropriate methods), developing new visual analytics methods applicable to big data and place, or others picked in consultation with instructor.* A target objective (but not a requirement) of projects is to generate a paper for submission to a journal, proceedings, or other relevant outlet.