Course Introduction
This applied research course is focused on the broader technical issues of what a contemporary geographic information system (GIS) is and how the system can help us model and better understand the dynamic complexities of a city. The course introduces students to a mix of geographic information system theory and applications to urban design and planning problems. Topics will include geographic projection and coordinate systems, data management, the concept of topology, models of spatial data, spatial analysis techniques, and GIS implementation issues.

The overarching goals of the course are as follows:

- Develop an understanding of geographic data organization and analysis in GIS
- Develop the operational skills to perform GIS-related tasks using available software packages
- Develop linkages between GIS’s capabilities and its roles in urban and environmental design and planning activities

Course Structure
The course is structured around paired lectures and lab sessions. Topics introduced in discussion sessions will be explored in greater depth and applied to real data during lab sessions. In addition, students are expected to work on an individual project (or a team project with classmates) to apply GIS spatial analysis to their selected research questions.

Optional Text
ESRI, *Getting to Know ArcGIS Desktop*
Selected articles and book chapters will be provided as examples to help you structure and organize your project.

Evaluation
The final grade will be calculated on the following:

40% Lab assignments
20% Participation in lab tutorials
40% Final project