

# GEOGRAPHY AND PLANNING

## GPHY 345- Spatial Analysis



<b>Contact Time</b>	Two-hour lecture and two-hour lab per week	
<b>Format</b>	Lectures, lab assignments, class presentation and a final project – In person delivery	
<b>Class Assessment</b>	Lab assignments	40%
	Quizzes	30%
	Seminar and project proposal presentation	10%
	Final Project Report	15%
	Class participation and discussion	5%

### COURSE OVERVIEW

This course extends the basic knowledge and skills of GIS covered in GPHY 243 by examining key techniques used in spatial geodatabase and spatial processes for geospatial data. It combines lectures with a substantial practical component. The lectures cover technical issues related to geodatabase design, network analysis, location-allocation modeling, retail modeling, spatial pattern analysis, data classification, and spatial regression. The practical component will involve lab assignments and a final project. The hands-on part of this class will mainly be based on ArcGIS Pro with a small portion of the class involving Google Maps and online GIS. For the class project, students will be required to apply techniques and methods in more depth to different applications.

### COURSE TOPICS

This course covers three main units: geodatabase structure and design, spatial exploratory analysis, and network analysis. In the first unit, the students will learn the basic structure of a geodatabase, set up a geodatabase, geocoding, topology, and relationship classes. In the second unit, different spatial patterns and clusters, spatial regression and statistical tools will be introduced. In the last unit, students will gain an understanding of geometric networks, network analysis, location-allocation functions, and retailing models.

**This course is a core course for the Certificate in Geographic Information Science.**

### COURSE READINGS

No textbook required. Suggested readings will be posted on onQ or provided through Queen's eReserves.