**Course Instructors**
Dr. DongMei Chen  
**Email**: chendm@queensu.ca

**Offices**
Macintosh-Corry Hall D125

**Contact Time**
Two-hour lecture and two-hour lab per week

**Phone**: 613-533-6045

**Format**
Lectures, labs, discussions, presentations and a final project

**Class Assessment**
- Lab assignments: 40%
- Quiz and midterm: 30%
- Final Project Report: 15%
- Seminar and project proposal presentations: 10%
- Class participation and discussion: 5%

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**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 hand-on part of this class will mainly be based on ArcGIS with a small portion of the class involving the Google Maps and online GIS. For the class project, students will be required to apply techniques and methods in more depth to different applications.

**LEARNING OUTCOMES**
Those who successfully complete the course are able to
- Explore the basic interface structure of different functions, operations and tools in ArcGIS.
- Understand the data structure and model of geodatabases and know how to set up a geodatabase, build topology class and geometric network to store geospatial information for different applications.
- Apply different vector-based functions and extensions including network analysis, facility location, spatial pattern analysis, spatial regression, and retail marketing applications.

**COURSE TOPICS**
Geodatabase structure and design, geocoding, topology, geometric networks, network analysis, location-allocation problem, retail modeling, spatial patterns and clusters, spatial regression and statistical tools.

**COURSE READINGS**