



GEOG 407: ISSUES IN GEOGRAPHY (FALL 2019)

Introduction to Programming for the Spatial Sciences

No previous programming experience is expected

This course introduces students to conceptual and practical aspects of programming for the spatial sciences. The primary focus of this course is on developing a solid understanding of programming concepts and techniques irrespective of the specific programming language, framework, or software. Topics will include spatial data structures, flow control, classes & objects, and basics of geospatial data modeling and analysis. Students in this course will develop a proficiency in applying these programming principles to real-world geospatial problems. Supplemental to a conceptual and practical understanding of programming, students will be introduced to a number of leading commercial frameworks and cutting-edge open source tool-kits.

This course is open to any and all students with an interest in the spatial sciences or related disciplines. The soft prerequisite for this course is GEOG 201 or permission from the instructor. It is recommended that students be familiar with geographic data formats and demonstrate a basic understanding of core geospatial concepts.

LEARNING OUTCOMES FOR THE COURSE

Upon successful completion of the course students will be able to:

- Demonstrate an understanding of the complexity involved in developing computational models as abstractions of the real world.
- Demonstrate an understanding of the class-object model employed in object-oriented programming.
- Present a basic understanding of how geospatial (GIS & Remote Sensing) software works *under-the-hood*.
- Automate geospatial processing tasks using the Python programming language.
- Organize, communicate, and solve theoretical and practical geospatial problems both individually and in a team environment.

COURSE SCHEDULE

- Lectures: Wednesdays & Friday 10:00a – 11:30a
- Lab Section: Fridays 2:30p-4:30p

MORE INFORMATION

Please contact the instructor, Professor Grant McKenzie (grant.mckenzie@mcgill.ca)

