GPHY 415- Advanced Analysis of Earth Surface Processes

Course Instructor | Dr. Melissa Lafreniere | Email: Melissa.lafreniere@queensu.ca
Office            | D124 Macintosh-Corry Hall
Contact Time      | 3 hours every 2 weeks | Phone: 533-6000 ext. 78720
Format            | Lectures, discussions, assignments based on laboratory and field work, project development

Class Assessment  | Participation 8% | Research paper summaries 21% |
                  | Laboratory and Field Assignments 21% |
                  | Project Proposal 10% |
                  | Final Project Presentation 10% |
                  | Final Project Paper 30% |

COURSE OVERVIEW

This fourth year Honours capstone project course will provide the opportunity for physical geography students to apply skills and knowledge acquired throughout their program towards a project. A specific case study or issue will provide the foundation for student learning over the course of the year.

Students will take an integrated approach to explore key earth surface processes, and how these processes may be changing due to human activity. The course will include a series of lectures and seminars on various research topics for which the students will need expertise, followed by development of project proposals related to different aspects of the case study. The course will explore relevant field and laboratory methods, and how they are used to assess contemporary environmental or geographic issues. Our approach will involve a holistic watershed analysis, as watersheds are well-defined geographically and integrate many earth surface processes. Students will collect data through various means including field instrumentation and observation, analysis of historical data record, and analysis of remotely sensed imagery and spatial databases. Students will analyze these data, interpret and synthesize their results and present them to their peers and key stakeholders.

LEARNING OUTCOMES

- Integrate knowledge from different areas of physical geography and geomatics to develop a holistic picture of the factors controlling surface processes, and how they are influenced by human activity.
- Evaluate and assess different methodologies to determine the most appropriate methods for addressing a key earth surface issue.
- Synthesize, summarize, and critically assess the value and significance of research as presented in the scientific literature.
- Synthesize and present information describing approach and outcome of project investigation to peers and stakeholders.
- Apply key laboratory and field techniques in physical geography and geomatics to explore earth surface processes.

COURSE TOPICS

Hydrological and climatic monitoring techniques, data collection and assessments, land-use change, geomatics, environmental change, watershed management and assessment.

COURSE READINGS


Selected readings, including recently published scientific papers and assessment reports that will serve as the basis of seminar discussions and project development, will also posted on the course web site.