

# GEOGRAPHY AND PLANNING

## GPHY 315 – Advanced Field Measurements and their Analysis



<b>Course Instructor</b>	<b>Dr. Christopher Omelon</b>	<b>Email:</b> <a href="mailto:c.omelon@queensu.ca">c.omelon@queensu.ca</a>
<b>Offices</b>	D102A Mackintosh-Corry Hall	<b>Phone:</b> 613-533-6000 ext. 79036
<b>Contact Time</b>	One 1.5 hour lecture per week; One 3.0 hours laboratory per week	
<b>Format</b>	Lectures and Labs	
<b>Class Assessment</b>	Lab Assignments (4)	40%
	Lecture Quizzes (4)	20%
	Final Project	35%
	Participation	5%

### COURSE OVERVIEW

This course provides background knowledge and practical experience in some of the methods of measurement of environmental parameters normally collected in physical geography research studies. These include aspects of climate (energy and radiation fluxes, temperature, humidity, wind, precipitation), surface and groundwaters (temperature, turbidity, conductivity, cations and anions), soils and sediments (moisture, grain size, biogeochemical characteristics). It also introduces geophysical (i.e. GPR) and remote sensing measurements.

### LEARNING OUTCOMES

By the end of this course, students will:

- Identify and describe Earth's major "spheres" and their interactions
- Understand the fundamental principles of environmental measurements
- Gain experience with taking environmental measurements and understand data collection
- Identify a research topic of interest, and determine data requirements to address this question
- Write a "research proposal" that applies knowledge to a specific scientific problem
- Effectively communicate results in both oral and written formats

### COURSE TOPICS

- Atmosphere: climate past and present
- Hydrosphere: nature and characteristics of surface waters and groundwaters
- Pedosphere: soils and sediments, biogeochemical cycling
- Lithosphere: subsurface environments, geophysical tools

### COURSE READINGS

- To be provided by the instructor.