

## Current Research Opportunities for Prospective Graduate Students 2024-2025

### Physical Geography, GIS and Remote Sensing

#### **Dongmei Chen** ([chendm@queensu.ca](mailto:chendm@queensu.ca))

- Looking for two students, M.Sc., or Ph.D.
- Machine learning and AI-based methods for change detection from time series remotely sensed data.
- Analysis social/economic/demographic inequality and modeling of human mobility and its impact on COVID-19 spread

#### **Ryan Danby** ([ryan.danby@queensu.ca](mailto:ryan.danby@queensu.ca))

- Looking for one or two students, M.Sc. or Ph.D.
- Reconstructing forest history from tree rings (well-suited for MSc). The student would conduct sampling and analysis of remnant trees and cross-reference their results with historical records to reconstruct forest history in eastern Ontario.
- Caribou habitat analysis (well-suited for PhD). The student would analyze GPS collar data and remote sensing data to model changing habitat use of the declining Bathurst caribou herd in Nunavut and Northwest Territories.

#### **Melissa Lafrenière** ([Melissa.Lafreniere@queensu.ca](mailto:Melissa.Lafreniere@queensu.ca))

- The relationship between landscape features and hydrological and biogeochemical processes involving carbon, nitrogen, contaminants, and metals in High Arctic watersheds.
- Investigating how climate warming, impacts groundwater contributions to runoff and catchment biogeochemical processes across different geomorphic features in permafrost watersheds.
- How size, abundance, and lability of organic carbon (POC and DOC) varies with permafrost and hydrological changes in High Arctic Watersheds.

Ideally suited for a PhD students, starting September 2024, with possibility of field work in summer 2024.

#### **Christopher Omelon** ([c.omelon@queensu.ca](mailto:c.omelon@queensu.ca))

- Looking for two or three students, M.Sc. and Ph.D.
- To document landscape conditions (e.g., surface water chemistry and hydrology, soil moisture and active layer dynamics, vascular plant abundance and diversity, carbon fluxes, and microbial activity and diversity) in a high Arctic setting to provide a baseline for changes due to climate warming.

- To understand the extent of talik environments in continuous and discontinuous permafrost, their thermal, hydrogeochemical, and microbial characteristics, and the potential biogeochemical impacts due to permafrost thaw and subsequent hydrologic connectivity with surface and subsurface environments.
- Studies will use field- and laboratory-based hydrological, geophysical, geochemical, and molecular approaches to characterize and understand complex processes.
- Opportunities for fieldwork in the Canadian Arctic and advanced training in analytical and imaging techniques including isotope ratio mass spectrometry, optical emission spectroscopy, ion chromatography, x-ray diffraction and electron microscopy.

**Neal Scott** ([neal.scott@queensu.ca](mailto:neal.scott@queensu.ca))

- Looking for one or two students, M.Sc. or Ph.D.
- Integrating Aquatic and Terrestrial process studies to understand total C and N budgets in High Arctic wetland catchments. Ideally suited for a PhD thesis project. Co-Supervision with Dr. Melissa Lafreniere.
- Impacts of land-use history on forest structure, function, and resilience to future changes in climate.
- Quantify changes in soil quality associated with establishment of “Little Forests” in urban environments
- Impact of soil bacterial inoculants on soil carbon and nitrogen cycling processes in agricultural systems, and the environmental impact of these inoculants

**Laura Thomson** ([l.thomson@queensu.ca](mailto:l.thomson@queensu.ca))

- Looking for one or two students, M.Sc.
- Glacier area and volume change studies in the Canadian Arctic using GIS and remote sensing methods (incorporating historical air photos, satellite imagery, and elevation models). Start September 2023 with opportunity to participate in spring 2023 fieldwork (Bylot Island).  
Other potential topics include: (1) Glacier thermal regime mapping and modelling (GPR & FEM); (2) Automation of glacier mapping using topography-driven algorithms (GIS/Python); (3) Push-moraine dynamics in glacier forefields (Remote sensing &/or FEM); (4) Ground-penetrating radar potential with multi-frequency systems.

**Ian Strachan** ([ian.strachan@queensu.ca](mailto:ian.strachan@queensu.ca))

- Funded opportunities for PhD and/or MSc students in carbon exchange from peatlands disturbed by peat-harvesting operations
- Research is in collaboration with university, Government and private sector partners
- Field-based approaches including chamber-based and eddy covariance flux measurements of CO<sub>2</sub> and CH<sub>4</sub> to investigate the environmental and management controls on GHG exchange

## **Human Geography**

**Grace Adeniyi-Ogunyankin** ([goaa@queensu.ca](mailto:goaa@queensu.ca))

- Looking for one student, M.A. or Ph.D.
- I am looking for someone interested in youth cultures and the African urban.

**Laura Cameron** ([cameron@queensu.ca](mailto:cameron@queensu.ca) )

- Looking for one student, M.A. or Ph.D.
- Looking for a student interested in historical geographies of nature and joining the Sonic Arts of Place (SAP) Lab

**Dan Cohen** ([dan.cohen@queensu.ca](mailto:dan.cohen@queensu.ca))

- Looking for one or more students, M.A. or Ph.D.
- I am recruiting graduate students (MA or PhD) working in economic geography, especially the study of markets and finance. Students may propose their own project or apply to work on a SSHRC-funded project on the link between monetary policy and inequality (see more details on my faculty website: <https://www.queensu.ca/geographyandplanning/people/cohen-dan>)

**Julia Christensen** ([julia.christensen@queensu.ca](mailto:julia.christensen@queensu.ca))

- Multiple M.Sc. or Ph.D. students
- collaborative research with northern and Indigenous communities on northern housing, social determinants of health and experiences of homelessness
- northern and Indigenous students are particularly encouraged to apply

**Patricia Collins** ([patricia.collins@queensu.ca](mailto:patricia.collins@queensu.ca))

- Looking for one or more students, MA or PhD
- Looking to supervise graduate students interested in the fields of health geography, healthy built environments, and healthy community planning. Students may propose their own project or choose to work on an existing project in the areas of street rebalancing initiatives and sustainable transportation interventions. You can learn more about my program of research by visiting [www.healthycityprof.com](http://www.healthycityprof.com).

**Maxwell Hartt** ([m.hartt@queensu.ca](mailto:m.hartt@queensu.ca))

- Looking for one Ph.D. student
- I am recruiting a student interested in the economic, social, cultural, and urban planning implications of shrinking and aging cities to join the [Population and Place Research Lab](#).

**Mark Stoller** ([mark.stoller@queensu.ca](mailto:mark.stoller@queensu.ca))

- Looking for one or more MA or PhD student(s).
- I am looking for students with research interests in Arctic/circumpolar human geography, geographies of settler-Indigenous relations, participatory research methods/methodologies, and youth-oriented research.
- I am also interested in working with students with interdisciplinary interests across human and physical geography.