Current Research Opportunities for Prospective Graduate Students 2023-2024

Physical Geography, GIS and Remote Sensing

Dongmei Chen (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)

- 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)

- Terrain Specific modeling of runoff and water quality in the Niaqunguk watershed Iqaluit. MSc or PhD, start September 2023, with possibility to conduct field work starting summer 2023.
- The relationship between landscape factors and hydrological and biogeochemical processes, and mercury loads in High Arctic 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 student, starting September 2023, with possibility of field work in summer 2023.
- 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, with start date of September 2023. Co-Supervision with Dr. Neal Scott.

Christopher Omelon (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)

- 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

Laura Thomson (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)

- Multiple M.Sc. or Ph.D. students
- Opportunities for field-based research on greenhouse gas exchange in modified and managed wetland ecosystems

Human Geography

Laura Cameron (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)

- 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.qu)eensu.ca/geographyandplanning/people/cohen-dan)

Patricia Collins (patricia.collins@queensu.ca)

- Looking for one or more students, M.A. or Ph.D.
- Looking to supervise graduate students interested in the fields of health geography and healthy community planning. Students may propose their own project, or choose to work with me on one of the following projects:
    - *Levelling the Playing Fields* – a CIHR-funded population health intervention research project which seeks to evaluate the implementation and impacts of street rebalancing initiatives in Kingston and Montreal;
    - *Communities Left Behind* – a SSHRC-funded study of the consequences of permanent public school closures in the Ontario context;
    - *CapaCITY* – a CIHR-funded multi-site evaluative study of the implementation of sustainable transportation interventions in Kingston;
    - *Queen's Employee Commute Study* – a longitudinal study to document the commute patterns of Queen's employees.

Kesha Fevrier (kesha.fevrier@queensu.ca)

- Looking for one student, M.A. (domestic) or Ph.D.
- The student must be interested in work related to the circular economy of waste, waste mobilities, used textile trade, oil and gas waste management in Guyana, and informal waste economies in the global South.

Maxwell Hartt (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

Mark Stoller (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.