

Current Research Opportunities for Prospective Graduate Students 2024-2025

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, either M.Sc. or Ph.D.
- Reconstructing forest history from tree rings. 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. This has important implications for identifying targets and conditions for ecosystem restoration.
- Spatial pattern analysis of forest-tundra ecotones. The student would use GIS to analyze landcover data from treeline environments to compare patterns in latitudinal (arctic) and altitudinal (alpine) environments. This is important for understanding the potential for forests expansion as climate continues to warm.

Melissa Lafrenière (Melissa.Lafreniere@queensu.ca)

- The relationship between landscape features and hydrological and biogeochemical processes involving carbon, nitrogen, phosphorus, contaminants, and metals in High Arctic watersheds.
- Combining UAV techniques and field measurement to map snow depth, and calculate catchment wide snowmelt water runoff, soil moisture and DOM concentrations.
- 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.

The projects are ideally suited for PhD students (or 1 PhD and 1 MSc), starting September 2025, with possibility of field work in summer 2025.

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 PhD
- Understanding the impact of climate change on High Arctic ecosystems by studying critical cycles of carbon and nitrogen. Current focus on methane cycling and integrated terrestrial/aquatic studies to understand total C and N budgets in High Arctic catchments.
- Modeling and measuring the impact of novel bio-inoculants on nitrogen cycling in agricultural systems
- 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)

- Funded opportunities available for PhD and/or MSc students for 2025 in the theme of carbon exchange in restored peatlands previously disturbed by harvesting operations
- This research is in collaboration with University, Government, NGO and Private Sector partners
- Students will receive training on field-based measurement approaches (including chambers and eddy covariance) for CO₂ and CH₄ fluxes to investigate the environmental and management controls on greenhouse gas exchange

Human Geography

Grace Adeniyi-Ogunyankin (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)

- 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](https://www.qu)eensu.ca/geographyandplanning/people/cohen-dan))

Julia Christensen (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
- Climate change, housing and infrastructure in northern Canada
- Planning, settler colonialism and housing in northern and Indigenous communities
- Indigenous home sovereignties in northern Canada
- Northern and Indigenous students are particularly encouraged to apply

Carolyn Prouse (cpv@queensu.ca)

- Looking for MA students
- Will supervise students interested in critical geographies of infectious disease surveillance; feminist and anticolonial Science and Technology Studies and health; geopolitics of biosecurity
- Candidates will work with other students, postdocs, and faculty in the cross-Canada <https://biosecuritiesgeog.ca> lab

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.

Urban and Regional Planning

Ajay Agarwal (ajay.agarwal@queensu.ca)

- Looking for one PhD student interested in researching Transportation Needs of Older Adults, particularly unmet needs of those who do not drive.

Patricia Collins (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.

David Gordon (gordond@queensu.ca)

- Looking for one or two MA or MPL students

Research Topics:

- Topics to support the Canadian Planning Histories Digital Library that we have underway, such as content analyses and indexes for planning journals
- Archival research on the early histories of planning in Kingston
- Archival research on the early histories of planning in other medium sized Canadian cities (Not Toronto, Montreal, Ottawa or Vancouver, which have been done...)

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 to join the [Population and Place Research Lab](#).