## POSITION DESCRIPTION

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| Position Title | Baseline Watershed Disturbance Internship – master's level project |
| Department/School | Selkirk Innovates in collaboration with UNBC Faculty of Environment |
| Reports to | Kim Green  (Researcher) |
| Employee Group | N/A |
| Pay Grade | $21.20/hr + 4% in lieu (for current college or undergraduate students) $22.41/hr + 4% in lieu (for recent graduates or graduate students) |
| Total Hours | 2-Year (4-term) MITACS supported position |
| Work Term | Sept 3, 2024 – April 30, 2026 Start and end dates will be adjusted to be coincide with graduate program start |
| Location | Prince George and Remote. |
| How to Apply | Submit resume and cover letter as attachments to kgreen@selkirk.ca by 4:00 pm August 31, 2024 |

## POSITION SUMMARY

The project's goal is improving the understanding of appropriate baseline land cover conditions from which to measure hydrological disturbance in British Columbia watersheds. This Mitacs-funded project is part of a larger research initiative focused on hydrological model development being undertaken through a collaboration between Selkirk College (Selkirk Innovates) UNBC, UBC, and forest industry partners but will be based in Prince George, BC.

The position is a master's level research project that will be jointly supervised by Dr Tara Clapp (UNBC Faculty) and Dr. Kim Green (Selkirk Innovates Faculty).  The project will require a multidisciplinary approach that includes integrating concepts and principles from the fields of hydrology, geomorphology, landscape and forest ecology and BC Provincial land management policy. Study outcomes will be used to inform the broader hydrological modeling research project and as well, provide valuable information for watershed managers and planners throughout the study area.

Research approach is to include;

- Utilizing historical imagery and landcover data bases within the GIS environment to characterize temporal and spatial patterns of landcover disturbance,
- Applying concepts of landscape ecology across hydroclimatic regions to delineate regional disturbance zones.
- Applying machine learning methods to estimate long-term landcover disturbance levels across spatial scales.
- Contrasting research outcome with Provincial land management policy applicable to the natural resource sectors.

Prospective students must meet the academic requirements to admission to graduate program, should have (or will have) an undergraduate degree in geoscience/earth science, physical geography, environmental science, environmental planning or a related discipline, practical knowledge and competency in the use of GIS and geospatial analysis methods, and solid grounding in at least one assessment policy context in the British Columbia context (or similar) – watershed assessment, cumulative impacts assessment or environmental impact assessment. Priority will be given to Canadian applicants.

This Mitacs internship will be based at University of Northern British Columbia, Faculty of Environment, School of Planning and Sustainability.  The student will work with their supervisors to develop a customized learning plan which can facilitate training, networking, mentoring, and other career development activities over the course of

the research program. The successful applicant will be enrolled in the Selkirk Innovates applied research internship training program, which does not have a fee.

## COMMITMENT TO INCLUSIVE EXCELLENCE

The diversity of our workforce is at the core of our innovation and creativity and strengthens our research and teaching excellence. In keeping with our strategic commitment to diversity and inclusion, Selkirk College strives to embody the values of respect, collaboration and diversity, and has a strong commitment to employment equity. Selkirk Innovates seeks qualified candidates who share our commitment to equity, diversity and inclusion, who will contribute to the diversification of ideas and perspectives, and especially welcomes applications from First Nations, Métis and Inuit peoples, members of racialized communities ("visible minorities"), persons with disabilities, women, and persons who identify as 2SLGBTQ+.

## MAIN DUTIES AND RESPONSIBILITIES

- Undertake a literature review to identify the current state of knowledge and determine scope and methods of research project
- Conduct geospatial analysis that is facilitated by machine learning methods to map landcover disturbance across scales and over time in Boundary and Kootenay region watersheds.
- Compare/contrast outcomes with Provincial policy related to watershed management in the resource sector
- Present results in publishable reports
- Share outcomes of study at workshops and conferences.

## QUALIFICATIONS

- Qualify to be enrolled in a graduate level program at UNBC
- Well-developed GIS research skills. Please note that this position requires an in-depth understanding of GIS techniques and is therefore not a good fit for candidates who have completed a single GIS course with no additional skill development through work experience.
- Interest in and knowledge of mountain watershed systems
- Experience collecting and working with BC Provincial and Federal landcover datasets
- Experience with GIS-based data analysis using the latest GIS software.
- Experience programming in R, as well as Python or similar language
- Familiarity with the application of machine learning approaches
- Practical knowledge of Provincial policies related to at least one watershed assessment approach
- Strong communication skills with the ability to communicate research outcomes in English language written documents and conference events.
- Excellent interpersonal, time management, and task management skills
- Ability to work independently
- Access to a personal computer with Microsoft Office programs, geospatial analysis/GIS software, and sufficient processing power to manage large datasets.