

GEOG333/NRES763 - Geography Field School

GEOG498/NRES798: Mountain Water Resources in British Columbia

Instructor: Dr. Joseph Shea (joseph.shea@unbc.ca)

Course Summary

This field course and the accompanying special topics course will examine mountain snowpacks and water resources in western Canada. The mountains of western Canada are home to some of the largest volumes of snow in the world. Students will take a circle tour through the mountains of western Canada, stopping at points of interest and observation sites as we move through the Canadian Rockies, the Interior Ranges, and end up on the eastern side of the southern Coast Mountains of British Columbia at the Tatlayoko Field Station. The courses will integrate a variety of practical skills and activities (sample collection, mapping, and surveys) with classroom lectures to give students both theory and skills relevant to snow, climate, and water resource studies.

Course Details

- **25 – 29 April:** Lectures at Prince George UNBC campus (or via Zoom)
- **1 – 13 May:** Field School in BC and Alberta

Courses Offered

1) GEOG-333/NRES-763 - Geography Field School (3 credits)

This field course provides an opportunity for students to apply their in-class theory to field situations. Students will record snow, meteorological, and hydrological observations in the field using sampling equipment, notes and sketches; create maps and cross sections; help collect and analyse geospatial data from unmanned air vehicles (UAV); and present summaries of their field investigations. Field school participation includes planning, shopping, packing, and day-to-day camp operations: cooking, cleaning, and organizing. Students will also be required to register the Special Topics course (see below) which focus on interpreting and providing context for the information and data collected as part of the field school.

2) GEOG-498/NRES-798 – Special Topics: Mountain Water Resources British Columbia (3 credits)

Field visits, data collection and analysis, and course readings will provide students with an understanding of how snow is a critical water resource in British Columbia. Topics of study will include the meteorological and hydrological characteristics of the region, the history and extent of water management, and analysis and interpretation of field data and long term climate/hydrological observations.

Important Dates

- Information session #1: Mid-November (TBD)
- Deposit of \$150 due: 15 Feb 2022

Specific Course Objectives

Students will:

- develop skills in recording meteorological and hydrological observations in field settings
- apply the scientific method to design and complete research projects
- develop tools and understanding of UAV research survey techniques
- apply code-based solutions to analyse climatological and hydrological datasets
- recognize the relations between mountain weather, climate, and hydrology
- understand the role of mountain snowpacks in BC water resources.

Risks and Policies

Pre-departure meetings will involve frank discussions with students about potential risks related to participation in this field school: remote travel; severe weather; animal encounters; camping; and other hazards associated with working outdoors. Participants will be required to sign a waiver, accepting responsibility for what might happen during the field school. We have ZERO tolerance for drug use or any harassment, abuse, or discrimination. Students in violation of these terms will be personally and financially responsible for arranging their early return from the field school.

Fees

Fees are broken down below into field school costs (accommodation, travel in the field, and food). Fees are approximate, and may change depending on the number of students who enroll.

Item	Cost per student
Accommodation	
• camping (3 nights)	\$100
• hotels/hostels (3 nights, double occupancy)	\$300
• Tatlayoko Field Station (6 nights)	\$200
Van rental + fuel (13 days)	\$450
Food	\$450
TOTAL	\$1500

Instructor

Dr. Joseph Shea is an Associate Professor in Environmental Geomatics in the Department of Geography, Earth, and Environmental Science at UNBC. His research focuses on airborne and spaceborne imagery and data; changes in snow, ice, and water supplies in mountain regions; and unscrewed air vehicle (UAV) research applications. His research website is www.moshlab.org