

LAKEHEAD UNIVERSITY
Ontario Universities Program in Field Biology

Course Title:	Winter Field Ecology
Instructor(s):	Dr. Michael Rennie, mrennie@lakeheadu.ca ; Dr. Ashley Thomson, athomson@lakeheadu.ca ; Dr. Jim Roth, jim.roth@umanitoba.ca ; Dr. Ted Ozersky, tozersky@d.umn.edu ; Dr. Michael Paterson, mpaterson@iisd-ela.org ; Dr. Scott Higgins, shiggins@iisd-ela.org
Dates:	February 13 th to 24 th , 2020
Location:	IISD-Experimental Lakes Area Field Station, Ontario
Cost:	\$1200.00* (\$350 deposit to home university, \$850 balance) plus tuition payable at your home institution. Includes: accommodations, meals, use of research equipment, facilities and supplies, pick-up and drop-off in Winnipeg or Thunder Bay. Does not include transportation to and from Winnipeg or Thunder Bay.
Prerequisites:	University course in ecology is required. Previous course(s) in limnology, aquatic ecology, and terrestrial ecology are an asset.
Enrolment*:	12 (4)
Course Description (brief):	<p>This 12-day field course will focus on the biology and ecology of terrestrial and freshwater organisms and life history strategies used to cope with winter, and the physical and chemical characteristics of ecosystems during the winter period. The course may also address the effects of human impacts and climate change on boreal ecosystems, the ecosystem goods and services they provide, and the geographical distribution of species. Students will be exposed first-hand to experimental methods in ecology and have the opportunity to work with long-term data from IISD-ELA.</p> <p>The <u>limnology section</u> of the course will focus on how ice and snow accumulation on lakes dramatically alters abiotic factors of lakes (e.g., light, temperature, nutrients) and how these changes influence ecological responses. Students may be introduced to common winter limnological sampling techniques, including measuring snow and ice conditions, sampling for physical and chemical properties of water under-ice, and collection and identification of phytoplankton, zooplankton, invertebrates and fishes. The <u>terrestrial section</u> of the course will focus on both boreal wildlife and forestry. Students may learn how to identify local trees and other flora and fauna, while learning about their ecology adaptations to surviving in a harsh boreal environment and the characterization and influence of snowpack on small mammals. Students may use equipment to participate in activities such as tree coring, density estimates, etc. Students may have opportunities to work with small mammals to learn capture-mark-recapture methods for estimating populations and tracking species.</p> <p>Students will be assigned to groups for their research projects that uses field data collected throughout the course.</p>
Evaluation:	<p>Introductory Presentation – pre-assigned and prepared before course (10%) Animal Care Approval and Certification (5%) Field/Lab quiz (20%) Field Notebook (10%) Participation (15%) Group Project - presentation on last day (10%); report due one month after end of course (30%)</p>

*Costs may decrease slightly pending funding.

Deadline to apply is **Feb 8, 2019**.

If interested please complete the application form and submit it to the OUPFB course coordinator at your school.
Deposit of \$350 is due at the time of registration.

Tuition at your home institution is *in addition* to any field module costs.

Students who drop a field course should not expect a refund of any field course costs.

Students are encouraged to purchase cancellation insurance if airline tickets are required.

Students are responsible for all fees incurred by the home or host university due to any bounced cheque.

An Average Day – What to Expect

(a) Daily timeline	7:00 am Breakfast, 8-12:00 Field Work, 12:00 Lunch, 1:00-5:30 Field Work, 5:30-7:00 Dinner, 7-9:00 Evening lectures/seminars/class discussions. Field work will happen in cold conditions. This twelve-day course focuses on both aquatic and terrestrial winter adaptations, meaning a variety of topics will be discussed and equipment used in the short period. The course will emphasize group-based data collection, analysis and lectures.
(b) Work habitat & Physical exertion	Field work will occur on the ice of neighbouring lakes and in forested areas a 2 to 30-minute hike/walk away. The field station is located in the boreal forest, so some small incline walks may occur. Some on ice sampling will occur in ice-fishing tents. Students will be required to assist with brining sampling equipment and other field gear to sample sites. Typical field excursions last 2-3 hours, returning between meal times. Long days should be expected.
(c) Common activities	Common activities include long days sitting in the open wind, snow and cold, walking through deep snow, working with field equipment and animals in an outdoor setting. Associated risks include twisted ankles, fatigue, hypothermia, and falling through the ice. These risks are mitigated through being careful and aware in walking in new environments, wearing of weather-appropriate clothing and <u>provided</u> personal protective equipment, working in pairs, and a good sleep.
(d) Weather, dehydration, & biting insects	For the time of year, temperatures range between -30 to -5. You will be working outdoors when it is potentially snowy and windy. It is important that you come adequately prepared with proper outdoor equipment to keep yourself warm while working outdoors for up to 5-hour periods. Good boots, gloves, toques, face protectors, jackets, and ski pants are highly important.
(e) Toxic/poisonous, wildlife/ plants	Because the course is held in the winter, bugs are not an issue. Bears are sighted in the area, but unlikely to be out of hibernation at this time of year.
(f) Sleeping, washroom & laundry facilities	Sleeping is dorm style in a room shared with 1-3 additional students in gender-specific arrangements (bunk-beds). Buildings are heated. Linens and pillows are <u>not</u> provided, please bring your own sleeping bag and pillow. Washroom facilities are modern (flush toilets). Showers are private with hot and cold running water. Laundry facilities are <u>not</u> available. Please pack adequately for 12 days.
(g) Meal plans & food allergies	Students should inform the lead instructor of allergies and accommodations (e.g., gluten free, vegetarian, etc.) prior to arrival. Meals will be provided by an onsite cook.
(h) Non-academic responsibilities	Bunk houses are to be cleaned by students prior to departure (i.e., swept, bathrooms cleaned, etc.). Students will also take turns assisting the cook with dishes and clean up.
(i) Degree of isolation	Power is available at camp. Internet is over wifi, but bandwidth is limited. No video conferencing or downloading is permitted because of limited wifi. Cell service is not available. It is highly recommended if you have an android to download a communications app such as "What's App" if you need to communicate with anyone. Meals are provided but snacks are not- if you are snacky, bring your own but keep your room free of crumbs and refuse. A stocked first aid room is on site with AED, epipen and all necessary requirements for immediate treatment; closest emergency rooms are in Dryden or Kenora (1 hour 30 mins away drive). Likewise, closest stores for personal hygiene needs are also 1 hour and 30 min away drive, so please pack accordingly.
(j) Alcohol & drugs	Alcohol consumption is permitted as per the IISD-ELA alcohol policy which will be made available to students. IISD-ELA is currently updating their alcohol policy to handle the legalization of cannabis. An updated position on cannabis will be available by May 1, 2019.
(k) Vaccinations/ Insurances	Vaccinations are not required. Insurance is through home institution, though travel insurance in case of flight cancellation etc. is recommended.
(l) Social Situations	The IISD-ELA fosters a highly collaborative working environment; people work together and play together. The winter is the off season for the field station, so instructors and students and one IISD-ELA staff will be on site. So expect to get to know your peers quite well. Because of dorm style accommodations, please be respectful of each others space, and clean up after yourself. Students will work together on data collection, field work and in groups of 2-3 on their group presentation and project. Evening can be spent in the common space with your peers.
(m) Final comments	Though long days and being outside in cold conditions may sound intimidating, this will be a fun course! You will meet new people from across Canada, build good friendships, and network with professors and research scientists, one who could just turn out to be your undergraduate or graduate supervisor! It is also a unique opportunity to work at a world-renowned research station that is known for their whole ecosystem experiments, long term data, and influencing freshwater management and legislation around the world. This course will provide you with a holistic look at boreal ecology and provide you the opportunity to work with animals, use scientific equipment, get experience doing field work and potential lab analysis, and data analysis.