

BIOL 350.3 Q4 – Honours Field Course 2017

Course Title: Honours Field Course

Term: Q4

Course Code: BIOL 350

Course Credits: 3

Class Location: Off Campus - Camp Kinasao, Christopher Lake, SK

Class time: Monday, August 21 to Friday September 1, 2016

Instructors: Dr. Dennis Lehmkuhl (966-4408; dennis.lehmkuhl@usask.ca), Dr. Jeffrey Lane (966-4475; jeffrey.lane@usask.ca) and Mr. Scott Halpin (966-4493; scott.halpin@usask.ca)

Course Description

Students will be challenged to apply the scientific method working in the field with natural environments, species, communities, and ecosystems as found in nature. Emma Lake provides a variety of habitats and systems, including lakes, rivers and forests. Informal lectures and discussion will provide a framework for fieldwork and projects. Emphasis will be placed on gaining an understanding of the challenges of field work, including identification of organisms, the problem of quantitative sampling vs. collecting, the search for patterns and processes in natural systems, and working with data and drawing conclusions. Conclusions will be presented and discussed in written and oral reports by the students.

Prerequisites: 21 senior credit units BIOL, and restricted to students with minimum CWA of 70% overall and in Biology, or permission of the course co-ordinator.

Note: This course is required in the Honours program in Biology. Enrolment is limited and priority will be given to students admitted to the Honours program in Biology. It is recommended that this course be completed after the third year of study.

Cost

Additional fees - Accommodation and meal fee is \$600.00. This is based on a \$25/night fee based on shared student-rate accommodation. Payment will be automatically assessed on PAWS and attached to your student registration fees.

Accommodation and Meals:

Kinasao is located near the town of Christopher Lake (see map). Cabins typically house 2-5 people and there is a separate building for showers and washrooms. This building also has washing machines, so you may wish to bring some laundry soap. There is a central dining facility on the lake shore. The food available provides sufficient choice if one is a vegetarian. If for some reason you require separate accommodations, please contact Scott or Joan (see below).

***You MUST bring a sleeping bag, pillowcase, towels and snacks for your stay.**

Special Arrangements and Organization

Please let us know (Scott Halpin - 966-4493, Joan Virgl - 966-4400) if you have any specific needs or requirements that need to be arranged before the course. Also let us know if you plan to take your own vehicle.

Meet at the loading dock behind the W.P. Thompson (Biology) building at 9:00 am on August 21st. Baggage should be taken to the loading dock at the rear of the for transport to camp. (see map and directions Kinasao Camp, Christopher Lake) .

Learning Outcomes

By the completion of this course, students will be expected to:

1. identify common species of plants and animals including invertebrates of forest, lake and lotic ecosystems in the boreal forest.
2. explain the terms "structure" and "function" as they pertain to terrestrial and aquatic ecosystems.
3. understand how to use equipment associated with ecosystem sampling.
4. apply principles of good experimental design and quantitative analysis to design a study project.
5. collaborate and communicate effectively with fellow students to complete group projects.

Course Overview

The actual field work will involve:

1. The identification of local flora and fauna and some knowledge of their evolutionary adaptations. Students are assigned to develop a field key based on vegetative characteristics for 25 species of woody plants.
2. Study of several local systems, including a lake, a stream or river, and the forest. Trophic relationships (source of energy and energy pathways), biodiversity, and the biotic and non-biotic aspects of the systems will be emphasized. Specific areas of study will include general description of physical and community structure and identification of community members in several habitats. There will be quantitative sampling and methods will be compared. There will be benthos sampling in the littoral and open water areas of a lake, plankton sampling, river sampling, and forest sampling.

Written Reports

A final report written by each student will be a comparison of the forest, lake, and flowing water ecosystems, especially regarding biodiversity, trophic structure and the biotic and abiotic features of the systems. Use Odum and Smith for concepts to be considered.

Individual Project

Students will plan and conduct an individual or multi-person project which allows you to study areas of special interest to you. The projects should take approximately 3-4 days to complete and an oral report will be presented plus a written report will be handed in and made available to other class members.

Note: Notice in the schedule below that you will be introduced to plants, the forest, the lake, and flowing water within the first 4 days. This is so you will be better able to identify your area of greatest interest and for you to become aware of some of the problems and methods associated with studying that part of the ecosystem. For a project, you should aim to become an expert on some topic, and you might decide to focus at the level of biodiversity and species richness, and do an annotated collection, for example of insects, plankton organisms, non-flowering plants, soil organisms, or any other group. Or you might decide to go deeper into structure and function of the ecosystem, and identify and quantify trophic levels, food chains, species diversity, landscape ecology, species rank abundance, or any of a number of other aspects of ecosystems. This will require more thought and planning, and if you have any special interests, **you may wish to start planning now**. Or you might decide to focus on a single species- observing behaviour, activity, food habits, distribution, etc, for example for some bird, fish, insect, or plant. It will be a challenge to design, propose and complete a good project, but that is part of our goal in this course.

Class Schedule (tentative weekly schedule) – Monday August 21 to Friday, September 1, 2017

Monday, August 21st (Lehmkuhl, Lane, Halpin)

Depart Saskatoon, travelling to Kinasao Camp, Christopher Lake. Learn local Kinasao plants and vegetation; collection and plant keys (Halpin).

Tuesday, Wednesday, Thursday (Lane, Halpin)

Forest community; trapping terrestrial.

Friday, Saturday, Sunday (Lehmkuhl, Halpin)

Lake limnology, river, Cecil Ferry. Lab keys and identification. Aquatic Communities, Species richness, food chains, river continuum. Project proposal.

Monday, Tuesday, Wednesday (all instructors)

Projects, assigned reports. Catch up.

Thursday (all instructors)

Oral reports and discussion.

Friday

Depart to Saskatoon 10:30 a.m. Lunch in Prince Albert. ETA Saskatoon 2 – 3 p.m.

Reading Material

See attachments or refer to <http://www.dennislehmkuhl.com> **teaching materials**.

Odum, Eugene P. (1962) Relationships between structure and function in the ecosystem. Japanese Journal of Ecology 12(3): 108-118

Smith and Smith, Freshwater Lakes and Streams, Food Chains

Course Equipment

Essential:

- Field notebook – at least one hardcover notebook from University Centre Shop, e.g. Wade field book (Cat #515/8671100); other suitable books are Pico or Write-in-the-Rain;
- regular notebook – a standard notebook of your choice for daily notes and observations
- dissecting kit
- paper and writing materials – note: write field notes in pencil
- field bag or small knapsack
- field clothing, including light jacket & warm coat
- rain gear
- boots (these may get very wet)
- calculator
- flash drive (memory stick)
- personal toilet articles

Desirable:

- Hat	- Compass/GPS
- Gloves	- Binoculars
- Mosquito net, repellent	- Bathing suit
- Clipboard	

Other course equipment will be provided, including plant presses and insect collecting and mounting supplies, for anyone wishing to make personal collections, and for group and individual projects.

Grading

Field notebook	15%	a complete diary of when, what, where, why, plus data, notes & thoughts
Project proposal	10%	due Sunday, August 27 th
Individual Projects	25%	oral presentation and executive summary
Participation/Initiative	5%	
Two Reports	45%	(total)
1)		Key to vegetative characteristics of 25 plant species. (15%) due Friday, August 25 th
2)		Summary & Abstract of what you learned about lakes, river, and the forest. Compare and contrast community structure, energy flow and food chains using the attached material (Odum, and Smith) as a guide. Eight to ten pages is suggested. (30%) to be turned in on the last day of the course (September 1 st) or within one week.

Integrity

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the Office of the University Secretary website and avoid any behaviour that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct (<http://www.usask.ca/secretariat/student-conduct-appeals/StudentAcademicMisconduct.pdf>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<http://www.usask.ca/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.pdf>).

For more information on what academic integrity means for students, see the Student Conduct & Appeals section of the University Secretary website at: <http://www.usask.ca/secretariat/student-conduct-appeals/resources.php>