**COURSE SYLLABUS**

**BIOL 350.3 (01): Honour’s Field Course**

**CRN: 88125**

14-Aug-2022 to 22-Aug-2022

Off campus: Camp Kinasao (Christopher Lk., SK)

**Dr. Jeffrey Lane (Instructor)**

Office: CSRB 310.3

306-966-4475

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**Office hours:** By appointment

**Treaty Acknowledgement**

As we gather here today, we acknowledge we are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another.

# Learning and Teaching Context

It is important to acknowledge that this course is occurring as the pandemic continues. Although the University of Saskatchewan and the Provincial Government have removed most restrictions, the sars-cov-2 virus is still present throughout Saskatchewan. In addition, many are still grappling with the emotional and mental health consequences of the pandemic. I ask that you practice appropriate personal safety, and that you interact with your instructors and fellow students with empathy and care.

# Important guidelines for this term

During this course it is important that we undertake activities safely. While masking is no longer required by the University of Saskatchewan, some students may still wish to wear masks for parts or all of the course. I ask that these students be treated kindly and that we respect their decision. Please do not attend the course if you are feeling sick. I highly recommend all students and instructors take a rapid antigen test before attending the course. If the test is positive, please do not attend the course and follow the guidelines posted on <https://covid19.usask.ca/about/safety.php#Expectations>

**Course Description**

Students will be challenged to apply the scientific method while working in the field with natural habitats, species, communities, and ecosystems. Christopher Lake and surrounding areas provide 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 challenges of quantitative sampling, the search for patterns and processes in natural systems, and working with data and drawing conclusions. Conclusions will be presented in written and oral reports by the students.

**Prerequisite(s):** 21 senior credit units in BIOL, and a minimum CWA of 70% overall and in BIOL, or permission of the course coordinator. 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 fees at Camp Kinasao will be assessed based on shared student-rate accommodation (it was ~$600 for the last course offering). 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, SK. 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. The food available provides sufficient choice if one is a vegetarian. If you have dietary restrictions or have a legitimate reason to require separate accommodations, please contact Scott Halpin or Tanis Skjeie in the Biology Department office.

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

**Special Arrangements and Organization:** Please let us (Scott Halpin - 966-4493; the Biology office - 966-4400) know if you have any specific needs or requirements that need to be arranged before the course. We will be taking department-arranged vehicles out to the course. There is the potential to travel in your own vehicle, but this requires an added level of organization, so we encourage you to take the course vehicles, if you’re able. If you must take your own vehicle, please contact Scott Halpin asap so we know how many students to take in the course vehicles.

**Meet in front of the CRSB building at the loading area at 8:00 am on August 14th.**

**Learning Outcomes**

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

1. Identify common species of plants and animals including invertebrates of the forest and lake from the boreal forest region.
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 and carry out a study project.
5. Collaborate and communicate effectively with fellow students to complete group projects.

Information on literal descriptors for grading at the University of Saskatchewan can be found at: <http://students.usask.ca/academics/grading/grading-system.php>

Please note: There are different literal descriptors for undergraduate and graduate students.

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at:

 <http://policies.usask.ca/policies/academic-affairs/academic-courses.php>

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: <http://www.usask.ca/university_secretary/LearningCharter.pdf>

**Course Overview**

**The 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 plants.**
2. **Study of several local systems, including terrestrial and aquatic. 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 of the littoral and open water areas of a lake, plankton sampling, and forest sampling of vegetation and small mammals.**

**Class Schedule**

\*Please note that the schedule may change (e.g., due to weather), and is provided as a solely as a general guide.

**Sunday, August 14th**

Depart Saskatoon 8:30 am, Lunch at Camp Kinasao. Christopher Lake plant tour. Lay out small mammal study grid and prebait traps. Evening: forest ecology lecture.

**Monday**

Forest Sampling at Emma Lake all day. Evening (group 1): put samples in the drying ovens etc.; (group 2): bait and set small mammal traps.

**Tuesday**

Morning (before breakfast (groups 1 and 2)): small mammal trapping. Aquatic Lecture after breakfast, Christopher Lake littoral zone sampling. Wrap up any forest sampling and plant I.D. Evening (group 1): bait and set small mammal traps.

**Wednesday**

Morning (before breakfast (group 1): small mammal trapping. To Anglin Lake all day, sampling: littoral zone and open water (plankton). Packed lunches at Anglin. Evening (group 1): weigh dried forest biomass, set out microscopes on benches; (group 2): bait and set small mammal traps.

**Thursday**

Morning (before breakfast) (group 2): small mammal trapping. After breakfast: aquatic lab work all day (invertebrate I.D. and plankton counting).

**Friday**

Forest project calculations, aquatic calculations, wrap up any lab work. Evening: Independent Project round-table discussion and planning

**Saturday**

Independent projects, work on plant key and proposal

**Sunday**

Independent projects, work on plant key and proposal

**Monday, August 22nd**

Independent projects, hand in proposal by **10:30am**, when the van will pack up and depart for Saskatoon.

**Midterm and Final Examination Scheduling**

N/A – No midterm or final exam.

**Required Resources**

## Required

* Field notebook – at least one hardcover notebook e.g. Wade field book (Cat #515/8671100); other suitable books are Pico or Write-in-the-Rain, or ‘level’ books from forestry/mining supply stores.
* Regular notebook – a standard notebook of your choice for daily notes and observations
* Paper and writing materials – note: write field notes in pencil in case the pages get damp
* Field bag or small knapsack
* Field clothing, including light jacket & warm coat
* Rain gear
* Boots (these may get very wet)
* Laptop computer
* Flash drive (memory stick)
* Personal toiletries

## Recommended

* Hat & gloves
* Mosquito net and repellent
* Clipboard
* Compass/GPS
* Binoculars
* Bathing suit (and chest waders if you have a personal pair. Otherwise, waders will be provided)
* Camera

Other course equipment will be provided, including plant presses, insect collecting nets and materials for group and individual projects.

Grading Scheme

|  |  |
| --- | --- |
| Participation/initiative | 10% |
| Project Proposal | 10% |
| Plant Key | 15% |
| Report 1 - Terrestrial | 15% |
| Report 2 - Aquatic | 15% |
| Independent project presentation | 10% |
| Independent project paper | 25% |
| Total | 100% |

Evaluation Components

## Participation/Initiative

**Value**: 10% of final grade **Date**: Aug. 22nd, 2022

**Description**: Students are expected to be actively involved in field and lab exercises and group discussions. This will be assessed by the instructor, lab coordinator and T.A. during the time up at Christopher Lake. We do not expect everyone to lead discussions, or even be highly vocal, but initiative, trouble-shooting and helping within your group is valued, as is diligence in the calculations and assembly of the group's data for the pooled class spreadsheets.

## Project Proposal

**Value**: 10% of final grade **Date**: Aug. 22nd before departing back to Saskatoon

**Length:** 4 pages maximum (double-spaced)

**Description**: Include the following sections: **Background** (provide sufficient ecological information to justify the study, explaining the basic features of your study organism and why your question is interesting. State your hypothesis (es) and predictions explicitly at the end of this section, using the ecological background to explain why you hypothesize/predict the way you do. **Methods** (provide enough detail to assess the feasibility of the study, including sampling design, projected sample size, and type of statistical test to be used). **Anticipated significance** (what will be the ecological conclusion if hypothesis is supported/refuted). Note: explaining anticipated significance for humans is not necessary and, unless this relevance is clear and explicit, is not advised. Significance for the (sub) field of ecology is likely more relevant. **References** (will not be as extensive as the full-write up of your project, but aim for 3-5 peer reviewed papers). We will have informal "pre-proposal roundtable discussion" for students to get feedback from their peers and instructors. Evaluation will also be based on how well students integrate this feedback to improve their project.

## Plant key

## Value: 15% of final grade

## Due Date: Aug 26th by 4:30 p.m.

## Description: A usable key to identify local plant specimens. Each student will be given a list of specimens to include in the key. Scott Halpin will be grading this and will provide more info on format.

## Report #1 – Terrestrial

## Value: 15% of final grade

## Due Date: Sept. 9th by 4:30 pm

## Length: 8-10 pages maximum (double spaced). This does not include any tables & figures which should be attached at the end of the report (in the order in which they are cited). DO NOT embed the tables and figures in the body of the text, please place them at the end of the Word Document.

## Description: Include: Introduction: (only 1-2 paragraphs: BRIEFLY introduce definitions of terms and purpose of study, explain "structure" and "function" and "ecosystem"); Methods: detailed enough so a reader could repeat your study, but don’t overkill the detail. It is OK to include a schematic Figure in the methods if it helps to explain your set-up. Results: You should discuss the quantitative results relating ot the STRUCTURE AND FUNCTION of the ecosystem, i.e., the numbers, biomass and spatial distribution of species (although, importantly, save your interpretation of these results for the Discussion). We will not have measured the function of ecosystems directly (such as rates of energy flow, nutrient cycling), but something about function and any bottlenecks in the system can often be inferred by the structure. Remember to correctly label all tables & figures with appropriate axes and titles or legends. Formal statistical tests (with p-values) are NOT required for this assignment, but data should be presented quantitatively with descriptive statistics (means, standard deviations etc.). Discussion: present a "big picture" about how the system is organized (discussing the patterns in your own data as examples to back this up, don't just repeat generalities from textbooks). Speculate/explain why the structure exists as it does, i.e., what is it about the functioning of the system that causes it to have the pattern it does. Are there abiotic or biotic constraints on the system Light? Nutrients? Predation? Competition? How will succession affect the system structure over time?

## Report #2 – Aquatic

## Value: 15% of final grade

## Due Date: Sept 23rdat 4:30 pm

## Length: 8-10 pages maximum (double spaced). This does not include any tables & figures which should be attached at the end of the report (in the order they are cited). DO NOT embed the tables and figures in the body of the text, place them at the end.

## Description: Same as the Terrestrial Report, Include: Introduction; Methods; Results, Discussion and any literature cited.

## Independent project presentation

## Value: 10% of final grade

## Due Date: Time TBD (based on students’ schedules) during the week of Oct 3rd.

## Length: 12 min with 3 min for questions/discussion.

**Description**: An oral presentation given to the instructors and other students. The background material, methods, results and interpretation should be discussed clearly, and time should be left for answering questions.

## Independent project paper

## Value: 25% of final grade

## Due Date: Oct 21st by 4:30 pm

## Length: 18 pages maximum (double spaced). This does not include any literature cited, tables & figures which should be placed at the end of the body of the text (do not embed the figs and tables in the body of the text) Arrange the tables and figures in the order they are cited in your report.

## Description: The final paper should be formatted (using the subheadings and literature cited style) as for the journal *Ecology*, and include all sections for a *scientific journal article* (Abstract, Introduction, Methods, Results, Discussion, Literature Cited) as well as appropriate tables and figures. For this independent project paper, we do expect (at least one) appropriate statistical test (with p-values) for your data. The style of this write-up should simulate the concise and succinct writing style and formatting of a scientific journal article—try to avoid wordiness and keep the focus on the study itself (avoid overly tangential explorations).

Submitting Assignments

Students are expected to submit assignments to Scott Halpin (plant key) or Jeff Lane (all other assignments) as either a hard copy or through email at Kinasao (project proposal) or to individual offices (all other assignments) on or before their required due dates. Late assignments will be dealt with as described below.

**Late Assignments**

All assignments are expected to be completed on time. If a student has a valid excuse for a missed assignment an extension may be granted given instructor discretion. The instructor must be notified of the reason for the delay within 3 business days of the due date. If a reason is not provided by this time, the instructor reserves the right to assign a penalty of 10%/day (starting on the initial due date).

**Criteria That Must Be Met to Pass**

Please refer to the University of Saskatchewan Grading System (for undergraduate courses) above for criteria that must be met to pass. There are no other additional criteria that must be met to pass.

**Attendance Expectations**

Students are expect to attend the field course for its full duration.

**Experiential Learning**

Most activities in this course are hands-on, experiential, learning. It is expected that all students will be active participants in these activities. Participation in the experiential learning components will be graded directly through the participation/initiative assessment. Engagement with the experiential learning components will also be indirectly assessed through performance on the written/oral assessments.

**Recording of the Course**

Given its field-based setting, recording the course is infeasible for the instructors. Recording of the course by students will only be allowed in certain circumstances. Please consult with Access and Equity Services regarding approval to record the course.

**Copyright**

Materials posted on Canvas or distributed during the course will be made available in accordance with Canadian copyright laws. Students are reminded of their obligation to also abide by this legislation.

**Student Feedback**

Upon completion of the class, students will be asked to submit a course/instructor evaluation, organized by the Department of Biology. Results from this evaluation will be made anonymous and delivered to the instructor following submission of final grades. Feedback from this evaluation will be incorporated into future offerings of the course.

**Integrity Defined (from the Office of the University Secretary)**

The University of Saskatchewan is committed to the highest standards of academic integrity (<https://academic-integrity.usask.ca/>).  Academic misconduct is a serious matter and can result in grade penalties, suspension, and expulsion.

**Prepare for Integrity**

Students are expected to act with academic integrity.

* Students are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community (tutorial link: <https://libguides.usask.ca/AcademicIntegrityTutorial>) .
* Students can access campus resources that support development of study skills, time and stress management, and ethical writing practices important for maintaining academic integrity and avoiding academic misconduct.

**Responses to Misconduct**

Students are expected to be familiar with the academic misconduct regulations (<https://governance.usask.ca/student-conduct-appeals/academic-misconduct.php#About>).

* Definitions appear in Section II of the academic misconduct regulations.
* The academic misconduct regulations apply regardless of type of assessment or presence of supervision during assessment completion.
* Students are advised to ask for clarification as to the specific expectations and rules for assessments in all of their courses.
* Students are urged to avoid any behaviour that could result in suspicions of cheating, plagiarism, misrepresentation of facts.  Students should note that posting copyrighted course materials (e.g., notes, questions, assignments or exams) to third party websites or services or other forum or media without permission is an academic or non-academic misconduct offense.

Non-academic offenses are dealt with under the [Standard of Student Conduct in NonAcademic Matters and Regulations and Procedures for Resolution of Complaints and Appeals](https://governance.usask.ca/student-conduct-appeals/non-academic-misconduct.php).

**Access and Equity Services (AES) for Students**

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <https://students.usask.ca/health/centres/access-equity-services.php>, or contact AES at 306-966-7273 or aes@usask.ca.

Students must arrange such accommodations through AES by the stated deadlines.

**Student Supports**

**Student Learning Services**

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site <https://library.usask.ca/studentlearning/>.

**Teaching, Learning and Student Experience**

The Teaching, Learning and Student Experience Unit (TLSE) focuses on providing developmental and support services and programs to students and the university community. For more information, see <https://students.usask.ca/>.

**College Supports**

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at: (<http://artsandscience.usask.ca/undergraduate/advising/>)

**Financial Support**

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central (<https://students.usask.ca/student-central.php>).

**Aboriginal Students’ Centre**

The Aboriginal Students’ Centre (ASC) is dedicated to supporting Aboriginal student academic and personal success. The centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The centre is also dedicated to intercultural education, brining Aboriginal and non-Aboriginal students together to learn from, with and about one another in a respectful, inclusive and safe environment. Students are encouraged to visit the ASC’s Facebook page (<https://www.facebook.com/aboriginalstudentscentre/>) to learn more.

**International Student and Study Abroad Centre**

The International Student and Study Abroad Centre (ISSAC) supports student success and facilitates international education experiences at USask and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange and English as a Second Language students in their transition to the University of Saskatchewan and to life in Canada. ISSAC offers advising and support on matters that affect international students and their families and on matters related to studying abroad as University of Saskatchewan students. Please visit [students.usask.ca](http://students.usask.ca/) or [updates.usask.ca](https://updates.usask.ca/) for more information.

## Recommended Technology for Remote Learning

Students are reminded of the importance of having the appropriate technology for remote learning. The list of recommendations can be found at <https://students.usask.ca/remote-learning/tech-requirements.php>.