COURSE SYLLABUS

BIOL 350.3 (01): Honour's Field Course
CRN: 88125

5-Aug-2023 to 15-Aug-2022
Off campus: Hannin Creek Education and Applied Research Centre (Candle Lk., SK)

Dr. Jeffrey Lane (Instructor)

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Ms. Adriana Guerrero-Chacon (Teaching Assistant)

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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.

Important guidelines for this term
During this course it is important that we undertake activities safely. While masking as protection from the sars-cov-2 virus 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. In addition, it is a requirement that masks be worn while handling live mammals. 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/. If you require this course as part of your Honour's degree, please get in touch with the instructor and Department if you are unable to attend to discuss alternatives.

Course Description
Students will be challenged to apply the scientific method while working in the field with natural habitats, species, communities, and ecosystems. Candle Lake and surrounding areas provide a variety of habitats and systems, including lakes, streams, 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, working with ecological data, and drawing reasonable conclusions. Completed projects 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 – There are additional course fees to cover accommodation and meals at Hannin Creek. Payment will be automatically assessed on PAWS and attached to your student registration fees.

Accommodation and Meals: Hannin Creek is located near Candle Lake, SK. Cabins typically house 2-8 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.
***Remember to bring a sleeping bag, pillowcase and towel for your stay.**

Special Arrangements and Organization: Please let us (Scott Halpin - 966-4493; Jacey Bell – 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 or Jacey Bell 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 5th.

Learning Outcomes

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

1. Identify common species of plants and animals including invertebrates of terrestrial and aquatic habitats within the boreal forest region.
2. Be able to characterize ecological communities based on species present.
3. Understand how to use equipment associated with ecosystem sampling.
4. Apply principles of good experimental design and quantitative analysis to develop 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/observation of several local systems, including terrestrial and aquatic. You will be introduced to standard protocols used in field ecology, including those to collect data on aquatic and terrestrial plants, terrestrial mammals, and aquatic invertebrates. You will also receive instruction in study design, quantitative/statistical analysis of ecological data and proper presentation methods (verbal and oral). It is expected that the Scientific Method be followed for independent projects (including proper formulation of research questions, hypotheses, and predictions, appropriate field and statistical methods, and correct data analysis and interpretation).

Class Schedule

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

Saturday, August 5th
Depart Saskatoon 8:30 am, Lunch at Hannin Creek. Afternoon: Safety discussion; Candle Lake plant tour. Evening: Lay out small mammal study grid and prebait traps; forest ecology/biodiversity lecture.

Sunday
Forest Sampling all day. Evening: bait and set small mammal traps.

Monday
Morning (before breakfast): small mammal trapping and processing. Forest sampling after breakfast. Evening: bait and set small mammal traps.

Tuesday
Morning (before breakfast): small mammal trapping and processing. After breakfast: independent work (diversity analyses, writing up plant keys, proposals and papers). Lunch at Hannin Creek. Radiotelemetry after lunch. Evening: bait and set small mammal traps.

Wednesday
Morning (before breakfast): small mammal trapping and processing. Aquatic sampling after breakfast (Hannin Creek or Candle Lake) all day. Evening: experimental design lecture/discussion.

Thursday
Aquatic sampling after breakfast (Hannin Creek or White Swan Lake) all day. Evening: bat netting (weather permitting).

Friday
Morning (after breakfast): aquatic sample processing in lab. Lunch at Hannin Creek. Afternoon: independent project round-table discussion and planning. Evening: bat netting (weather permitting).

Saturday
Independent projects, work on plant key, proposal and paper. Evening: Statistics lecture/discussion.

Sunday
Independent projects, work on plant key, proposal and paper. Evening: Oral presentation lecture/discussion.

Monday
Independent projects, work on plant key, proposal and paper. Evening: Scientific writing lecture/discussion.

Tuesday, August 15th
Morning (after breakfast): Project presentations. Hand in proposal and plant key by **13:00**, when the vans 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
- Sleeping bag/bedding (including a pillow and pillow case)
- Personal towel

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	15%
Plant Key	15%
Report – Terrestrial or Aquatic	20%
Independent project presentation	10%
Independent project paper	30%
Total	100%

Evaluation Components

Participation/Initiative
Value: 10% of final grade
Due Date: Aug. 15th, 2023
Description: Students are expected to be actively involved in field and lab exercises and group discussions. This will be assessed by the instructor, lab coordinators and T.A. during the time up at Hannin Creek. 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: 15% of final grade
Due Date: Aug. 15th before departing back to Saskatoon
Length: 5 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 justify your hypotheses and predictions. **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. 15th before departing back to Saskatoon
Description: A usable key to identify local plant specimens. Each student will be given a list of specimens to include in the key. Additional info on format will be provided during the class.

Report
Value: 25% of final grade
Due Date: Aug 18th by 4:30 pm
Length: 8-10 pages text maximum (double spaced). This does not include any tables & figures which should be embedded within the body of the text.
Description: You have the choice of writing up either the terrestrial or aquatic data. Include: Introduction: (BRIEFLY introduce definitions of terms and purpose of study**).** Methods: detailed enough so a reader could repeat your study, but make it **concise and succinct**. 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 to the results of the study (although, importantly, save your interpretation of these results for the Discussion). 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" interpretation of the data. Explain why these results could have been obtained (i.e., do they match your expectations, set out in the Introduction).

Independent project presentation
Value: 10% of final grade
Due Date: Aug 15th.
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: Aug 25th by 4:30 pm
Length: 15 pages maximum (double spaced). This does not include any literature cited, or the tables & figures which should be embedded in the text.
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 appropriate statistical tests (with p-values, and relevant statistical output) for your data. The style of this write-up should follow 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/Jacey Bell (plant key) or Jeff Lane (all other assignments) as either a hard copy or through email at Hannin Creek or to individual offices 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 expected to attend the field course for its full duration. If you have a valid excuse for not being able to participate in certain activities on the field course, please contact Dr. Lane asap to discuss alternatives.

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. If you foresee any challenges or difficulties in participating in all field course components, please let the instructors now asap so the potential for accommodations can be discussed.

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.

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 or updates.usask.ca for more information.