**BIOL 470 CONSERVATION BIOLOGY**

**Couse Syllabus**

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| COURSE CODE:  | 60619 CLASS SECTION: 01 | TERM:  | T1 2022/23 (Fall)  |
| COURSE CREDITS:  | 3.0  | DELIVERY:  | In-Person Lecture, Labs and Lab Field Trips  |
| LECTURE RM:  LECTURE TIME:  LECTURE START: WEBSITE:  | Archaeology Bldg. Rm 1128:30 - 9:20 am M,W,FFriday Sept. 2, 2022Via Canvas | LAB RM. LAB TIME: LAB START:  |  Rm 95 Murray Bldg. / Field Mondays 1:30-5:20pm Sept. 12, 2022   |

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| **Instructors:****Dr. Christy Morrisey**christy.morrisey@usask.ca | **Dr. Malin Hansen**  sfk041@usask.ca  | **Shawna Pelech**shawna.pelech@usask.ca |
| please contact instructors via email for appt.**Teaching Assistant:** TBA |  |

# Land Acknowledgement

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. We recognize and respect that during this course you will spend time learning in other traditional territories and Métis homelands.

# Course Description

## An introduction to the theoretical and scientific foundation of conservation biology as applied to animals and plants. Course material will cover elements of behaviour, population, community and landscape ecology as they apply to conservation challenges at a local, regional, national and international scale. Labs will include measuring biodiversity, field trips, data analysis and debates of current conservation issues. Field trips are compulsory.

## Prerequisites

BIOL 228 (BIOL 302 recommended).

# Learning Outcomes

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

1. Understand the core ecological concepts that define the field of conservation biology
2. Explain the major threats to biodiversity, common approaches to conserving

biodiversity from genes to landscapes.

1. Think critically and creatively about conservation problems and solutions, recognizing some of the societal challenges that may be a barrier to conservation are complex which often requires compromise.
2. Address a local conservation issue and demonstrate in depth knowledge about the issue
3. Enhance their communication skills using various formats (written, oral) for both academic and public purposes.

# Learning and Teaching Context

We recognize that the past years have been extremely difficult, with trauma and loss experienced by many in our University community and beyond. We continue to be in a period of ongoing change that may be challenging for many. We encourage continued empathy and care from all course participants. Guidelines included in the next section may help guide everyone through the term safely.

# Important COVID-19 guidelines for this term:

During this term it is important that we undertake in-person elements of this class safely. In order to do this the university has developed a set of expectations and safety protocols that all students must adhere to if they are to engage in in-person activity.

**Throughout the term:**

**Protect the pack:** Right now, the impact of student choices and activities when not on campus cannot be separated from time spent on campus. In order to “protect the pack”, the university is asking all students who are doing in-person work to be mindful and do whatever possible to lower the risk that you will contract COVID-19 and bring it onto campus.

**Know what is required and expected of you:** One of the critical lessons learned in dealing with COVID-19 is knowing that situations can change and we must be flexible and ready to adjust our safety protocols. Instead of listing all of the relevant information in your course outline, the university has created [a webpage](https://covid19.usask.ca/students.php#Oncampusessentials) where all up-to-date information around returning to campus is listed. **You are responsible** for **regularly** checking the health and safety guidelines <https://covid19.usask.ca/about/safety.php#Expectations> and knowing what is expected of you throughout the fall term.

**Follow all guidance:** Students are expected to follow all guidance provided by the University’s Pandemic Recovery/Response Team (PRT), College/Department, professors, lab instructors, TAs, and any other staff member involved in the in-person academic program activities (e.g., Protective Services, Safety Resources).

**Key channels of communication**: If there is a need for the class to pause meeting in-person for a period of time you will be notified. If this occurs, you will be provided with detailed information on what you will need to do in place of the in-person class sessions (e.g., read content posted in Canvas, complete learning activities in Canvas). Instructors will continue to use our canvas site and/or emailed announcements as a means of communicating these changes to you. **Please check canvas regularly, and ensure you are notified via canvas announcements in a timely manner (via email settings if necessary).**

# Class Schedule

 \*Note order of topics and labs may shift due to field trip/weather/guest speaker changes.

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| --- | --- | --- | --- |
| **Wk** | **Lecture Theme** | **Lab / Field Trip** | **Quizzes & Assignments** |
| 1 - Sept 2 | Course Intro; Meet and Greet Instructors/Students; Conservation Biology History and Goals | **No Lab** |  |
| **Instructor Lead: Shawna Pelech** |
| 2 - Sept 7,9  | What is Biodiversity? Values, measures and misconceptions: from genes to ecosystems.  | **Labour Day No lab** |  |
| 3 -Sept 12, 14, 16 | Where is the Biodiversity? Local and international patterns, trends and designations. What do we manage for?  | **12 Sept** Field trip to Meewasin NE Swale Grassland Stewardship/Urban Reserves |  |
| 4 - Sept. 19, 21, 23 | Species and Population Conservation I: Extinctions and extinction risk, Classifying Species at Risk, IUCN classification, Species assessment and recovery planning.  | **19 Sept.** Data analyses and plant biodiversity indices for field trip 1 | **Report 1:** Grassland plant diversity Due Sept 26. |
| 5 - Sept. 26, 28,  | Species and Population Conservation II: Species-level conservation and tools: Modelling approaches: MPVs/PVAs; captive breeding and role of zoos | **26 Sept.** Field trip to Ducks Unlimited siteWetland threats & private land conservation  | **Wetland assessment** exercise (in field)Due end of lab |
| **Instructor Lead: Dr. Malin Hansen** |
| 6 - Oct. 3, 5, 7 | Threats to biodiversity: habitat loss, fragmentation & metapopulationsArea based conservation; reserve design | **3 Oct.** NCC on site or virtual field tripIBA/KBA | **Lecture Quiz 1** Due Oct. 7. |
| 7 -Oct 12, 14 | Restoration, reclamation and land management strategies | **10 Oct** NO LAB- Stat holiday |  |
| 8 -Oct. 17, 19, 21 | Threats to biodiversity: edge effects, invasive species  | **17 Oct** Data analysis for Field Trip 2/ Bird Biodiversity Lab | **Report 2:** Avian biodiversity on NCC lands Due Oct 24 |

# Class Schedule Cont.

 \*Note order of topics and labs may shift due to field trip/weather/guest speaker changes

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| --- | --- | --- | --- |
| **Wk** | **Lecture Theme** | **Lab / Field Trip** | **Quizzes & Assignments** |
| **Instructor Lead: Dr. Christy Morrisey** |
| 9 - Oct. 24, 26, 28 | Conservation in Unprotected areas; Private lands, Land sharing and sparing | **24 Oct** Intro to Conservation Project (oral and written assignment) | **Lecture Quiz 2** Due Oct 28 |
| 10 - Oct. 31, Nov. 2, 4 | Threats to Biodiversity: Pollution and Climate Change | **31 Oct** CWS/MoE/SARA panel on the Role of Government |  |
| Nov 7-11 | **BREAK WEEK- No classes** | **7 Nov.** NO LAB |  |
| 11 -Nov. 14, 16, 18 | Putting a price on nature – ecosystem services and economic incentives and disincentives | **14 Nov.** Project work time |  |
| 12 - Nov. 21, 23, 25 | Sustainability Challenges and socioeconomic realitiesIndigenous led Conservation | **21 Nov.** Conservation Project Proposal Student Oral Presentations | **Conservation Project Oral** Due Nov. 21 |
| 13 - Nov. 28, 30, Dec. 2 | Cumulative Effects and ConservationRegulations: National Laws, International Agreements, Environmental Assessment Practices | **28 Nov.** Cumulative Effects Simulator | Cumulative Effects/**Land Use Exercise** Due in lab**Lecture Quiz 3** Due Dec. 2th (tentative date) |
| 14 - Dec. 5, 7  | Problem solving and making good decisions. Review and Integration | **5 Dec** NO LAB | **Conservation Project (Written)**Due Dec. 7th (tentative date) |

# Textbook and Readings

There are **no required textbooks** for the course however a selection of recommended textbooks will be placed on reserve at the library, including:

*Biodiversity Conservation in Canada: From Theory to Practice*, 2019. Richard R. Schneider.

Additional course material and **required readings** (from the primary literature and elsewhere) **will be posted on the course Canvas site**.

**Course Website & Supplementary Resources**

Required course material, **required readings** (from the primary literature and elsewhere), laboratory exercises, important announcements, field trip schedules and instructions etc. will all be posted on **the course canvas site. Students are responsible for having access to and regularly checking the canvas site for these resources and updates.**

Instructors will post lecture outlines and notes to the extent they are able/as appropriate on canvas. Please note that given the participatory/discussion - based nature of many lectures, these will NOT be complete lecture notes/transcripts nor cover all aspects presented in lecture, thus attendance and participation is highly encouraged/necessary to do well in the course. Lecture outlines/notes may be posted ahead of lecture as we are able, but instructors cannot guarantee this will be possible for all lectures.

However, as always, please do not come onto campus/attend lectures or labs if you are unwell. We will have contingency plans in place should you need to miss lectures/discussions or field trips if you are unwell and/or cannot attend. Please contact the designated instructor if you cannot attend for medical or extenuating circumstance reasons and we can do our best to make arrangements.

Grading Scheme\*

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| --- | --- |
|  3 Lecture Quizzes x 5% each  | 15% |
|  Lab Reports (2 x 8%)  | 16% |
|  Wetland Assessment | 5% |
|  Cumulative Effects/Land Use Exercise | 5% |
|  Class discussion exercises: preparation/participation/reflection  | 9% |
|  Conservation Project (Oral Presentation and Final Report) | 15% |
|  Final Exam | 35% |
|  Total | 100% |

**Evaluation Components**

**Lecture Quizzes (3 x 5%)**

**Value**: 15% of final grade

**Due Date**: See Course Schedule

**Type and Description**: These will be canvas-based, “open-book” quizzes (consisting of a combination of short answer and/or possible multiple choice, fill in the blank questions) designed to assess student understanding and application of concepts and skills introduced and discussed through each instructor’s section of the course. Further details will be provided in lecture.

**Lab Reports (2 x 8%)**

**Value**: 16% of final grade

**Due Date**: See Course Schedule

**Type and Description**: Lab reports will be a written assignment consisting of short introduction, methods, results (including graphs), and discussion sections (max 5 pages). Their purpose is to have students analyse data collected within (or associated with) lab field trips to answer questions/better understand how land stewardship activities introduced during field trips affect local biodiversity. Further details, instructions and rubric will be provided in lab.

**Lab Wetland Assessment**

**Value**: 5% of final grade

**Due Date**: See Course Schedule

**Type and Description**: This will be a written/quantitative in-field assignment where students follow provided guidance/criteria to assess riparian / wetland health during on-site field trip. Further details, instructions and rubric will be provided in lab.

**Lab Cumulative Effects/Land Use Planning Exercise**

**Value**: 5% of final grade

**Due Date**: See Course Schedule

**Type and Description**: Students will submit a short written summary (via canvas) on their background preparation for a class exercise simulating a land use planning process. Students will then work within groups to undertake a simulated land use planning process and present a group outcome/plan (orally and as a short written summary) at the end of the lab. Further details, instructions and rubric for both the individual preparation and group work will be provided in lab.

**Class Discussion Preparation/Participation/Reflection Exercises**

**Value**: 9% of final grade

**Due Date**: TBA in lecture/lab

**Type and Description**: Students will complete a short written question/assignment on Canvas prior to and/or after class discussions, guest lectures, debates to ensure students: a) complete and understand required readings and come prepared for in-class activities (e.g. question/answer sessions with guest speakers), b) effectively participate in class discussions, and c) reflect on what they have learned from those discussions. 5-9 short preparatory/participatory/reflection assignments (worth 1-2% each) will be assigned through the term to coincide with guest speakers and lecture discussions. Further details, instructions and rubric will be provided in lecture.

**Conservation Project**

**Value**: 15% of final grade

**Due Date**: See Course Schedule

**Type and Description**: Students will research and prepare a written assignment which simulates the research and preparation for and format of an Action Plan for a federally-listed Species at Risk in Canada (or Internationally listed IUCN Species at Risk). Students will present their proposed action plan in the form of a short oral presentation in lab (Nov. 21) and, after incorporating comments received during the presentation, submit a final written Action Plan by Dec. 7. Further details, instructions and rubric for both the oral presentation and written action plan will be provided in lab.

**Final Exam**

**Value**: 35% of final grade

**Date**: TBD; in-person exam scheduled during Final Exam Period for Fall 2022 classes

**Duration:** 3 hours

**Type and Description**: The final exam will consist of a combination of multiple choice, fill in the blank and short answer questions; with an emphasis on questions that require students to synthesize, evaluate and apply concepts and skills covered within the course. This will be a closed book exam and comprehensive (all material covered within the course will be included) in the exam. Further details on exam content and format will be provided in lecture.

# Final Examination Scheduling

Final examinations must be written on the date scheduled. Final examinations may be scheduled at any time during the examination period; students should therefore avoid making prior travel, employment, or other commitments for this period.  If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given.  Students are encouraged to review all examination policies and procedures: <http://students.usask.ca/academics/exams.php>

Submitting Assignments

Unless otherwise directed in lectures/labs, lab reports and evaluation materials should be submitted electronically via file upload/assignment completion on the course Canvas site by the specified due date/time.

# Late Assignments

# Late assignments will be assessed a penalty of 10% per day and will not be accepted after 3 days unless valid reason is provided to the instructor at the time of missing the deadline.

# Attendance and Participation Expectations

**It is expected that you attend and participate in all lecture and lab/field components of the course.** Both lectures and labs have extensive participatory activities as well as guest lectures/discussions/case studies designed to help you understand, evaluate and apply course concepts and skills.

There will be at least 2 field trips held off-campus during lab period on Monday afternoons. All other activities will be planned for in classroom or lab room. There is a requirement to fill in Health and Safety related forms prior to attending field trips. Field trips typically require extended walking outside and light-moderate physical activity on uneven ground. Wear appropriate footwear, bring water and a snack as well as a notebook and pencil. If you have any concerns (allergies, medical needs, etc.) about field trips, please discuss these with instructors asap and well ahead of scheduled labs as possible.

Once again, **please do not come onto campus/attend lectures/field trips or labs if you are unwell and notify your instructor prior to the event**. We will try to accommodate legitimate absences due to illness/quarantine and develop contingency plans should you need to miss lectures/discussions or field trips. Please contact us if you cannot attend for medical or extenuating circumstance reasons to make alternate arrangements.

# Copyright

Course materials are provided to you based on your registration in a class, and anything created by your professors and instructors is their intellectual property, unless materials are designated as open education resources. This includes exams, PowerPoint/PDF slides and other course notes. Additionally, other copyright-protected materials created by textbook publishers and authors may be provided to you based on license terms and educational exceptions in the Canadian Copyright Act (see [http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html)](http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html).

# Student Feedback

We welcome student feedback throughout the course. Opportunities for formal assessment of the instructors and course material will be provided at the end of term.

# 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 registered with AES may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through AES by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by AES.

# 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 <http://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 in their international education experiences at the U of S and abroad.  ISSAC is here to assist all international undergraduate, graduate, exchange and English as a Second Language students and their families in their transition to the U of S and Saskatoon.  ISSAC offers advising and support on all matters that affect international students and their families and on all matters related to studying abroad.  Please visit [students.usask.ca](http://students.usask.ca/) for more information.

# University of Saskatchewan Grading System (for undergraduate courses)

**Exceptional (90-100)** A superior performance with consistent evidence of

* a comprehensive, incisive grasp of the subject matter;
* an ability to make insightful critical evaluation of the material given;
* an exceptional capacity for original, creative and/or logical thinking;
* an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

**Excellent (80-90)** An excellent performance with strong evidence of

* a comprehensive grasp of the subject matter;
* an ability to make sound critical evaluation of the material given;
* a very good capacity for original, creative and/or logical thinking;
* an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

**Good (70-79)** A good performance with evidence of

* a substantial knowledge of the subject matter;
* a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
* some capacity for original, creative and/or logical thinking;
* a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

**Satisfactory (60-69)** A generally satisfactory and intellectually adequate performance with evidence of

* an acceptable basic grasp of the subject material;
* a fair understanding of the relevant issues;
* a general familiarity with the relevant literature and techniques;
* an ability to develop solutions to moderately difficult problems related to the subject material;
* a moderate ability to examine the material in a critical and analytical manner.

**Minimal Pass (50-59)** A barely acceptable performance with evidence of

* a familiarity with the subject material;
* some evidence that analytical skills have been developed;
* some understanding of relevant issues;
* some familiarity with the relevant literature and techniques;
* attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

**Failure <50** An unacceptable performance