

NRSM 271N Conservation Ecology

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Office hours: by appointment

Meetings

Rankin 203
T TH 2:00-3:20 pm

Format: Regular meetings will include lectures, discussions, in-class exercises and field excursions including one weekend field trip.

Course Objectives and Learning Outcomes

Ecology is the study of the interactions between organisms, organisms and the physical environment, and the cycling of matter and energy. It is a science focused on connections in biological systems. This course will provide an introduction to ecology and its outsized role for informing modern day conservation efforts, resource management efforts, and sustainability science. We will focus on ecological interactions between organisms and the environment at scales of individuals, populations, communities, ecosystems, and the biosphere. Students will collect ecological observations in terrestrial environments, develop thought experiments, develop conceptual and mathematical models, and read primary scientific literature with the aim to explore concepts in ecology, including species' life history strategies; environmental niches, biotic interactions; disturbance, and succession; invasion dynamics; fire ecology; ecosystem functions; and principles of planetary boundaries. Ecological principles will be used to explore major issues facing humanity in the 21st century, including population growth, biodiversity declines, disturbance patterns, invasive species, global change, and other topics of environmental sustainability. More than anything, the overarching objective of the course is to inspire students to think critically and apply ecological principles to understanding the world around them.

Learning Outcomes:

1. Understand natural selection and how it shapes a diversity of life history strategies and tradeoffs in species.
2. Demonstrate an understanding of abiotic and biotic processes which shape the distribution, abundance, and diversity of organisms.
3. Understand principles of energy and matter transformation within ecological systems.
4. Understand and apply experimental/observational approaches to gather, analyze,

and interpret data to detect and describe ecological patterns and processes at various scales of organization.

5. Gain familiarity with simple conceptual and mathematical models that describe ecological processes.

6. Summarize scientific arguments based on evidence from primary scientific literature including assessments of uncertainty.

7. Apply ecological principles to understanding contemporary environmental problems, including climate change and loss of biodiversity.

Readings

Readings will be assigned from the contemporary scientific literature, books, and websites. Copies of these reading assignments will be posted on Moodle. If you need technical assistance with Moodle, you can email the support team at courseware-support@umontana.edu, call 243-4999, or visit the [Tech Support Website](#).

Assessment of Participation and Reading: At the start of each class session, there will be a brief quiz on the assigned readings due for that class period. Students who read the assigned material should easily score highly on quizzes. Quizzes cannot be made up if class is missed, except for approved absences.

Assignments/Quizzes/Tests

There will be multiple assignments, quizzes, and tests issued over the duration of the course. Assignments will include lab write ups, reports that summarize contemporary conservation issues, and short presentations. Assignments are due at the beginning of class on the due date of each assignment. *Late assignments will not be accepted without prior arrangement, except in emergency situations (which will be evaluated on a case-by-case basis).*

Short Quizzes will be given on a regular basis to ensure students are keeping up with required reading and to evaluate comprehension of key concepts presented in the course. Quizzes will not follow a set schedule so it is contingent on students to regularly attend class in order to take quizzes. *There will be no make-up quizzes without prior arrangement, except in emergency situations (which will be evaluated on a case-by-case basis).*

Summary of graded activities:

1. Laboratory Exercises and reports (100 points each) -There will be two major laboratory assignments issued over the semester. These assignments will include collecting data, analysis and visualization of these data, written laboratory reports, and short presentations. Details on the requirements for these laboratory assignments will be provided later in the course.

2. In-class quizzes (~100 points total) – Regular quizzes will be given over the course to assess student engagement with reading assignments and comprehension of core concepts. Quizzes will vary in point value between *2 and 10 points* each.

3. Contemporary conservation and sustainability issues (50 points)

Students will be responsible for delivering a 5-minute presentation on an ecologically relevant conservation or sustainability issue as summarized in a contemporary news article(s). In addition to the presentation, students will lead a 15-minute discussion with classmates. The presentation and discussion should address the factual, conceptual, and debatable aspects of the science presented in the article(s). Details on this assignment will be presented later in the course.

4. Final Exam (100 points)

The final exam will assess your understanding of concepts presented throughout the course and will be multiple choice and short answer essay format.

Grades

This course is offered as traditional letter grade only. Students cannot change to credit/no credit at any time during the semester. There will be approximately 450 points total in the class. Grades will be based on a standard academic scale.

General Course Guidelines

Communication

All official course communications outside of class will be sent to students' University of Montana email accounts. It is your responsibility to regularly check your University email. Note: If your email account is full, you may not be able to send messages (but Griz mail will not tell you that the message has not been sent). In general, I will try to respond to email within 24 hours during the business week. If your email is not returned after 36 hours (excepting weekend), please resend it, as it has likely been lost in my email stack.

COVID19 Safety

- Class attendance will be recorded to support contact tracing efforts
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms and contact Curry Health Center at (406) 243-4330.
- During field trips, students should not congregate and should maintain at least 6 feet of distance from other students.
- Mask use is required in class.
- Drinking liquids and eating food requires mask removal and should be done away from other students in the class.
- If you are feeling sick or have been exposed, please follow the UM Policy available at:
 - Coronavirus Website: <https://www.umt.edu/coronavirus>

- Students are encouraged to remain vigilant on and off campus in mitigating the spread of COVID-19

These rules are for all of our safety and to minimize any risk of transmission of COVID. **If an outbreak within the class compromises my ability to safely teach this course or the safety of others in the course then I will transition face to face activities to remote learning for the remainder of the course.**

This is a novel and ever-changing landscape so mutual respect, honest and early communication, and flexibility is needed for us to have a successful semester.

Plagiarism

All students must practice academic honesty, including taking care not to plagiarize the words or ideas of others (i.e. submitting a direct quotation from a source without using quotation marks and citing the original document; or submitting text based on someone else's ideas without proper citation). Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review on line at: [Student Conduct Code Web Page](#).

The penalty for plagiarism in this course is zero credit on the plagiarized assignment, in addition to any consequences per the Student Conduct Code.

Accessibility Statement:

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructor, I will work with you and the ODE to implement an effective accommodation, and you are welcome to contact me privately if you wish.