

# SYLLABUS: NRSM 271 CONSERVATION ECOLOGY

FALL 2020

Wednesdays/1:30PM - 3:50PM (remote) OR 1:30 5:30PM (field trips)

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## Instructor

Dr. Cara R Nelson, Department of Ecosystem and Conservation Sciences, College of Forestry and Conservation. Email: cara.nelson@umontana.edu. Office: 460-C Clapp.

Office hours (via zoom) Thursday 3:30-5:00PM. Please make an appointment in advance to ensure that Cara will be available. If you are not available during these office hours, email Cara to arrange another time to meet.

## Introduction and Objectives

Ecology is the study of the distribution and abundance of organisms in relationship to their environment. It is, in a broad sense, the science of connections, including connections between organisms and their abiotic environment and organisms and other organisms, and the cycling of matter and energy. It is also one of the foundational sciences behind the conservation of biodiversity from genes to landscapes. This course introduces students to the field of ecology through the lens of ecological observation, and its importance for understanding environmental patterns, processes and change, as well as for developing conservation policy. Special attention will be paid to the importance of ecological observations in wilderness settings – where human impact on organisms and their relationship with the environment is minimized. Course exercises are specifically designed to leverage opportunities for ecological exploration during the Wilderness and Civilization fall trek (two weeks in the backcountry). Students will develop the critical analysis and technical communication skills necessary to explore the role of ecological science in natural resource conservation and management. More than anything, the overarching objective of the course is to inspire students to become lifelong ecological observers and active ecological thinkers.

The course has three sections:

- Making ecological observations (Aug 19-fall trek)
- Using ecological observations to understand the natural world (fall trek-Oct 28)
- Applying ecologic principles to natural resource and wilderness conservation (Nov 4-25)

## Learning Outcomes

Students completing the course should be able to:

1. Understand the definition, scope, and key theories within the field of ecology.
2. Understand the role of observation in developing ecological theory, as well as the limitations of observational studies.
3. Make and document detailed observations about the distribution and abundance of organisms and their relationship with the environment.
4. Apply ecological concepts to current issues in natural resource conservation and management.
5. Clearly communicate ecological concepts and ideas verbally and in writing.

### Meeting Dates, Times and Format

Class sessions will be a mix of remote web meetings and field trips, with one Saturday volunteer work event. We will not be using any campus classrooms.

Dates	Time	Mode of delivery
Weds, Aug 19	1:30-3:50 PM	Remote: Zoom
Weds, Aug 26	1:30 PM (leave campus) 2:00-5:30 PM (on site)	Face-to-face field trip to Sawmill Gulch planned/ May have to switch to remote (decision by 8/22)
Weds, Sept 9 - 30	1:30 PM (leave campus) 2:00-5:30 PM (on site)	Face-to-face: Local field trips (see schedule for locations)
Weds, Oct. 7 - Nov. 18	1:30-3:50 PM	Remote: Zoom
Sat., Oct 10 <b>or</b> 17 <b>or</b> 24	1:00-5:00 PM	Face-to-face: Garden site, UM Campus, south of Clapp parking lot
Thurs. Nov. 19	1:10-3:10	Remote: Zoom (scheduled exam time)

Remote classes: – This class includes 6 remote “synchronous” class sessions (i.e. students are required to participate during the designated course period rather than watching recorded content on their own time). The sessions will be held via Zoom and will include a mix of lectures, small group activities in “breakout rooms,” and student presentations. There will be a 10-15 stretch break in the middle of most sessions. During each break, 3-4 students will be asked to share a favorite stretch with the rest of the class, with students assigned in alphabetical order.

The zoom sessions have been set up as reoccurring meetings with a single link and password for all sessions (see Moodle for how to call in via telephone):

- <https://umontana.zoom.us/j/96232236162?pwd=cjVzZ2tEQU83SENOs1Y0K01BcFk4QT09>
- Password = 000000 (six zeros)

You can access the link via Moodle. Alternatively, if you use an online calendar, you can add the class (and link) as a reoccurring meeting, so that you can access the link directly from your calendar.

The lecture portion of the Zoom sessions will be recorded and links to the videos will be shared.

Field trips – The class includes 4 half-day field trips within biking distance from campus (within 6 miles). Students are expected to meet at the field trip location; transportation will NOT be provided due to COVID19 concerns. Although class starts at 1:30PM, the meeting time at the trip sites will be 2:00PM, to allow time for travel time from campus. Expect to leave the field trip sites at 5:30PM for return travel to campus.

Please bring water and a snack and dress appropriate for the weather. At most sites, restrooms will not be available.

During field trips, students are required to follow the following COVID19 safety precautions:

- Students should not congregate and should maintain at least 6 feet of distance from other students.

- Mask use is required even when standing 6 feet apart.
- Drinking liquids and eating food, as well as any other activities that require mask removal, are only allowed during designated breaks and should occur well away from other students.

Volunteer Work Day – Students will learn about the application of fire ecology and fire behavior concepts to community resilience by volunteering at Montana’s first FireWise Demonstration Garden, which is being installed this fall on the south side of the UM campus, during the Saturday afternoon of the student’s choice in October.

### **Assignment Expectations and Due Dates**

Consistent with three credits, this course requires an average of six hours of work per week outside of class time. Please allow enough time in your schedule for course work, keeping in mind that it will be difficult to complete all required work the day before class (given that we meet only once per week). *You will enjoy and better absorb the class content if you spread class work out throughout the week.*

The assignments and expectations for this course are challenging. The curriculum requires that students integrate knowledge rather than just memorizing and repeating ideas presented in lecture. As such, course assignments and exams are designed to help students think both broadly about the material covered in class, knowledge gained from other coursework, and relevant life experiences. *A commitment to coming to class prepared and ready to discuss ideas, dilemmas and solutions is necessary for success.*

Assignments are due at the beginning of class on the date listed in the schedule. *Late assignments will not be accepted without prior arrangement, except in emergency situations (which will be evaluated on a case-by-case basis).* For assignments that require submission of your work, please upload the completed assignment to Moodle. In addition to the *Moodle* submission, you may need to bring a copy of your work to class to reference during class discussion. Journaling assignments can be submitted by taking a photo of the page in your journal and uploading that to Moodle.

*Please do not include your name on submitted assignments. Instead, please include your 790 number.*

### **Class Attendance, Preparation, and Reading Assignments**

*Attendance* - Students are expected to attend all class meetings unless they are ill. Unexcused absences will result in lost points. Occasional absences due to injury, family emergency, religious observance, participation in a University sponsored activity (e.g., field trips, ASUM service, music or drama performances, and intercollegiate athletics), military service or mandatory public service will be excused without penalty. Please inform Cara as soon as possible if you need to miss a class for one of these reasons.

If you are feeling ill or have any symptoms of Covid19, please do NOT come to class and stay home. As soon as you are able, please let Cara know that you are unable to attend class due to illness (you are NOT required to disclose your diagnosis). Cara will accommodate students with long-term absences due to COVID19 or other illness, after discussing options with the student.

*Reading Assignments* – To be prepared for class, please make sure to read all assignments in advance of the class session. There will be assignments from the following required textbooks:

- *Observation and Ecology: Broadening the Scope of Science to Understand a Complex World* (2011) by Sagarin and Pauchard. Island Press. (Available through the UM bookstore and online vendors).
- *Plants of the Rocky Mountains* (2016) by Kershaw, MacKinnion, and Pojar. Lone Pine Media Productions. (Currently out of print and not available at reasonable prices on line. We have purchased a license from the publisher to print in a course pack).

Additional readings will be assigned from the contemporary scientific literature, books, and websites. Copies of these reading assignments (or links to copies) will be posted on Moodle. If you need technical assistance with Moodle, you can email the support team at [courseware-support@umontana.edu](mailto: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 (5-10-minute) quiz on the assigned readings due for that class period. A link to the quiz will be sent via email at the start of the class session. When the class meets in the field, students who do not have smart phones or do not have email enabled on their phones may request a paper copy of the quiz. Each quiz is worth one point. 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 (see above).

### **Ecological Observation Essays**

Students will be assigned four “ecological observation essays” throughout the semester. Each assignment will require reflecting on a set of “prompts” (questions intended to guide discovery) during a field trip, taking field notes, and writing a ca. 750-1000-word essay in response to the prompt. The prompts will be tailored to specific course activities. *A detailed hand-out describing the assignments and expectations will be provided on August 26<sup>th</sup>.*

### **Grinnell Species Accounts (Field Journal)**

During the first section of the course, students will receive training in the Grinnell Journal method, including the process of taking field notes, drafting species accounts, and collecting and cataloging plant specimens (herbarium sheets, photos, and/or drawings). Students will then use this method to record observations about organisms and their relationship to the environment. One species account will be due before the fall trek and will be graded as “credit/ no credit,” so that students will get feedback on their work prior to graded assignments. Students each will be assigned a specific plant species to observe during the trek. Students will then write at least 4 species accounts in their journal about their assigned species during the trek. Additional journal entries may be done for extra credit. Students will use their species accounts for the Observation and Ecology Final Project (described below). *A detailed hand-out describing the assignment and expectations will be provided on August 26<sup>th</sup>.*

### **High Country News Bite**

During the last section of the course, students will be responsible for delivering a 5-minute presentation on a High Country News (HCN) article on an ecologically-relevant topic, followed

by leading a 15-minute discussion with classmates. The presentation should include the following: a factual question and answer, a debatable question and answer, and a conceptual question in ecology and answer. Students may choose to research other information besides the HCN article as part of their presentations, but it is only necessary to base the discussion on the article that was read for the news bite. Prior to their presentation, students will write a report on the article, focusing on the same three questions and answers. *A detailed hand-out describing expectations will be provided on October 7.*

**Observation and Ecology Final Project**

The final project will integrate all aspects of the course through ecological exploration based on student observations and discovery on their assigned species. The project will include:

- A short (10-min) class presentation during one Wednesday in October on what was learned through ecological observation of the assigned species.
- A short (1500-2000- word) written report using the species to highlight an ecological concept. Students may elect to do a creative piece instead of a written report.

*A detailed hand-out describing expectations will be provided prior to the fall trek and discussed on the September 9<sup>th</sup> field trip.*

**Final exam**

There will be an essay-style, open-book final exam on Thursday, November 19 from 1:10-3:10 PM. The exam will be designed to assess student ability to integrate course concepts. *A study guide will be provided the week of November 2.*

**Evaluation**

Assignment	Points
Class attendance and reading (quizzes; n=9)	9
Ecological observation essays (n=4)	16
Grinnell Species Accounts (n=5; one Cr/NCr)	16
High Country News Bite (oral and written)	16
Observation and Ecology Final Project (oral and written)	22
Final exam (open book)	21
TOTAL	100

This course is offered as traditional letter grade only. Students cannot change to credit/no credit at any time during the semester. Letter grades will be assigned based on students’ numeric scores as follows:

- |                                     |                                      |
|-------------------------------------|--------------------------------------|
| A = ≥ 94%, A- = 90-93%              | B+ = 87-89%, B = 84-86%, B- = 80-83% |
| C+ = 77-79%, C= 74-76%, C- = 70-73% | D = 60-69%                           |
| F = <60%                            |                                      |

## 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 account. Beware: 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, the instructor tries to respond to email within 24 hours during the business week, but as a rule will not respond to email sent over the weekend. If your email is not returned after 36 hours (excepting weekend), please resend it, as it may have gotten lost in the 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 on all field trips, even when standing 6 feet apart.
- Drinking liquids and eating food requires mask removal and should be done well away from other students in the class.
- If you are feeling sick or have been exposed, please follow the UM Policy available at: UM
  - Coronavirus Website: <https://www.umt.edu/coronavirus>
  - UM COVID-19 Fall 2020 website: <https://www.umt.edu/coronavirus/fall2020.php>
- 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 students do not to follow all safety protocols, faculty are directed to cancel face to face activities and transition 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.

### *Classroom environment*

Students at University of Montana are diverse in many ways, including race, gender, age, religion, preparedness, and mobility. Please help create a respectful learning environment by honoring all student contributions and expressing your views in ways that do not diminish other students' perspectives.

### *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.

*Disability modification*

If you are a student with a disability and wish to request reasonable accommodations for this course, contact Cara privately to discuss the specific modifications. You will need to provide a verification letter from Disability Services for Students. If you have not yet registered with Disability Services, located in Lommasson Center 154, please do so in order to coordinate your reasonable modifications. For more information, visit the Disability Services website at [Disability Services Link](#).

**Dropping the course**

*Important dates for dropping this and other courses*

<b>Deadline</b>	<b>Description</b>
15 <sup>th</sup> instructional day	Students can drop classes, with course fees refunded; the course will not appear on their transcript.
16 <sup>th</sup> to 45 <sup>th</sup> instructional day	A class drop requires a \$10 fee; student will receive a 'W' on transcript; course fees will not be refunded.
Beginning 46 <sup>th</sup> instructional day	Students are only allowed to drop a class under very limited and unusual circumstances. Requests to drop must be signed by the instructor, advisor, and Associate Dean (in that order) and a \$10 fee applies. Instructor must indicate whether the individual is Passing or Failing the class at the time of request.