



THE YELLOWSTONE PROGRAM:
WILDLIFE CONFLICT AND CONSERVATION
SUMMER 2024
June 23 – July 7

ACADEMIC SYLLABUS

Faculty:

Lead Instructor: Veronica Yovovich, PhD

Co-Instructor: Lewis Reed

Contact Hours:

We will be together all day, every day throughout the course.

Class Meetings:

This Wildlands Studies Program involves instruction and field activities every day, with one half-day off during the program for resupplying, showering, and laundry. Faculty and staff work directly with students 10+ hours a day and are available before and after scheduled activities. We begin each day early (between 6 and 8 am), with breaks for meals, rest, and study time, and may run late (~10pm for wildlife observations). Most evenings contain scheduled activities, including discussions, structured study time, wildlife observation, etc. Since we will be spending all our time outdoors, we will need to work around whatever weather conditions come our way. As such, we need to be flexible and able to accommodate a variety of class times and conditions. Fluctuations in weather, and local tips on wildlife activity will have a significant impact on our daily plans. *I cannot emphasize enough the need to be flexible.* We will try to communicate changes in plan as soon as they arise, and please know that this is likely to come up every day.

Course Credit:

ESCI 437A, Environmental Wildlands Studies (5 quarter / 3.35 semester credits)

Field-based course studying the environmental problems affecting the natural and human-impacted ecosystems of our study region, including the role of human interactions.

This course provides formal coursework (i.e., readings, discussions, etc.) and experiential learning in the field.

Academic credit is provided by Western Washington University. For an extended description, see below.

Readings:

We have a course reader; a pdf version will be provided to students in advance of the course. Students need to bring a **printed** copy with them (**please print on both sides** to save weight, you'll appreciate this when we're backpacking!

Consider 2 pages per side to save more weight if you have good eyes). **Do not bring a tablet or laptop in lieu of printing.**

We will also have a shared reference library with additional materials.

Contents of this syllabus:

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I. Program Overview

Wildlands Studies' Yellowstone Program allows participants to observe, study, and learn about some of the most magnificent wildlife species in North America. This course enables students to see wildlife species – bison, grizzly bears, elk, possibly grey wolves, and more and to reflect on the perspectives – local vs. regional, scientific vs. cultural, etc. – by which they and their ecosystem are managed.

We spend the first week of the course at a base camp in/around Yellowstone National Park. Early mornings we may visit the Lamar Valley (aka “the Northern Range”) to find, observe, explore, and study a variety of habitats and wildlife species. We will spend the rest of the day and evening learning about various aspects of biology, ecology, conservation biology, and wildlife management as they relate to our focal species (particularly grey wolves, bison, and grizzly bears), and discuss the implications as they relate to Yellowstone National Park and the Greater Yellowstone Ecosystem (GYE).

In the process, students will acquire skills in wildlife observations, locating and tracking animals, understanding wildlife behavior, and identifying a variety of native flora and fauna. Our hands-on field activities will be augmented by meetings with local community members, wildlife management experts, and conservation leaders as we explore the ecology of our study species and the complex management issues and controversies surrounding them.

Halfway through the course we will have a town day for showers, resupplying, and relaxing. After which, we head into the spectacular Absaroka-Beartooth Wilderness for a 3 to 5 day backpacking trip. During this segment, students continue their studies of wildlife habitat and ecology, with an emphasis on grizzly bear biology and recovery in the Yellowstone Ecosystem, and we go deeper into the principles of conservation biology, natural resource management, and reserve design. Participants will also acquire basic backcountry skills that emphasize bear safety techniques, field navigation, and team building.

Although the course is not taught in a classroom, the academic expectations are high. There will be additional challenges posed by factors such as long days, inclement weather, logistical changes, and physically demanding conditions. As such, we will get the most out of our experiences together if we bring along flexibility, ample patience, a sense of humor, self-motivation, and perhaps most importantly, the desire to work as a team towards a common goal.

Students with special accommodation requests must communicate with the instructor before the course.

II. Learning Objectives

Students will develop knowledge of and experience in:

1. **Biological needs, behavior, and ecology of key species in the Greater Yellowstone Ecosystem.** We will focus on a subset of species that are sensitive to human activities, specifically grizzly bears, wolves, bison, and elk. Students will learn ecological concepts as they relate to these key species, and how human activity influences wildlife behavior and ecological relationships.
2. **Applying conservation biology in real-world application settings.** Human activities are impacting wildlife species at an unprecedented rate, increasing threats to the health and viability of wildlife populations everywhere, and the GYE is no exception. Students will learn to recognize how the principles of conservation biology are playing out in the GYE, including proximal and ultimate causes of species decline and extinction, principles of habitat fragmentation and reserve design, and how these principles have (or have not) been used to develop management and recovery plans for threatened or sensitive species.
3. **Political, legal, and social dimensions of wildlife species management.** Students will have the chance to meet biologists, natural resource managers, and other local stakeholders who have very different perspectives on sustainability, management, and policy. Students gain additional insight into the political and management history through readings.

4. **Field observation skills, including methods for documenting and sharing findings.** Students will be introduced to techniques for recording and presenting information (e.g., natural history sketching, field journaling, etc.) and gain experience using a variety of techniques to present natural history observations.
5. **Ecosystems and natural history of the Greater Yellowstone Ecosystem.** Students will learn to identify plant and animal species using field guides, understand the natural history of the GYE, and the processes that underlie ecological community development and change.
6. **Basic backcountry skills, including backcountry travel and safety, field navigation, and group management.** Although not the main focus of this course, students will learn the basics of backcountry trip planning, backcountry safety, and leadership. Each student will lead the group for one day, helping the instructors plan, coordinate and implement the day's activities, and lead the class discussion with the help of fellow students. In addition, each student will be naturalist of the day, teaching their classmates about a particular aspect of local natural history.

Topics will be addressed through course readings, discussions, field activities, visits with local experts and researchers, extended backcountry excursions, and field research projects. Much of the learning will take place as small group discussion of the readings. **Students must complete all of the required readings before the day's class and actively participate in the discussion.** Students will be expected to critically evaluate, analyze, and synthesize material from the various activities. Our overarching goal is to have students leave the course with knowledge about this region, as well as broader synthesis skills, allowing them to critically evaluate information in their future lives and careers.

III. Course Description

Students will receive transcript credit for the following course introduced on page 1:

ESCI 437A, Environmental Wildlands Studies (5 quarter / 3.35 semester credits)

Field-based course studying the environmental problems affecting the natural and human-impacted ecosystems of our study region, including the role of human interactions.

Experiences/Activities

Students will learn concepts and principles of environmental studies, conservation biology and ecology, wildlife management, and data collection and analysis techniques. Students will examine outcomes of environmental policies and wildlife management, including both sociological and ecological consequences, and evaluate environmental policy options. Along the way, students will consider concepts and principles of environmental research, ethics, land and wildlife management, and the role of culture in wildland management.

Outcomes

Students will gain the ability to critically read and evaluate scientific and policy literature, as well as texts written for popular audiences. Students will gain knowledge in natural history and policy, with specific emphasis on the GYE. Students will discuss and critique the literature in conjunction with other information they have learned in this program from local experts, personal observations, and other relevant readings. Students should be able to demonstrate understanding of basic ecological, management, and policy concepts as related to the GYE, including community ecology and species interactions, effects of climate change, etc. Students will be able to apply their knowledge of natural and social science to new scenarios and systems.

Students will develop skills in field observation and employ various techniques to present and record their natural history observations. Students will be able to conduct basic field research and be able to synthesize, organize, and present their data in a way that is appropriate to the audience and subject matter. Students will discuss their results considering current management or conservation issues.

IV. Grading Scheme

Letter grade	Percentage
A	92.5- 100+
A-	90.0- 92.4
B+	87.5- 89.9
B	82.5- 87.5
B-	80.0- 82.4
C+	77.5- 79.9

Letter grade	Percentage
C	72.5- 77.4
C-	70.0- 72.4
D+	67.5- 69.9
D	62.5- 67.4
D-	60.0- 62.4
F	< 60.0

V. Assessment

The following is an overview of the academic requirements. Some of the assignments are ongoing (e.g., journal and readings) and some have specific dates (e.g., exams). **Due dates are subject to adjustment in response to weather and logistic changes.** Final grades for the course will be based on the following items:

Assessment Item	Date due	% grade
NSF research proposal topic	6/30	8
NSF research proposal write up	7/5	
Bison field lab research project	6/30	6
Field journal – front country trip log, etc.	6/30 - check 1	16
Field journal – back country trip log, etc.	7/5 - check 2	
Reading, discussions and class participation/leadership	6/23-7/7	25
Midterm exam (short answer/essay)	6/30	20
Final exam (short answer/essay)	7/6	25

Research Projects (12%)

Each student will participate in one field study on bison behavior and one research proposal on a relevant local conservation topic, each based on our firsthand experience. You will gather and interpret data, develop research questions and methods, and write a report. The final grade will be based on detailed written reports in your field journal, as well as preparation, participation, and fieldwork.

Field Journal (18%)

The field journal is an integral part of the Yellowstone course. It serves as a learning tool, a place for reflection upon experience, and a record of your experience as a whole. You should plan on writing in it every day. The following is a summary of our expectations/recommendations and a rough outline of due dates throughout the course. **Clearly label each assignment so we can find them.**

0. Table of Contents (-4 pts if missing)

Leave one page (front and back) at the beginning of your journal for a table of contents. Populate this table with assignment names and page numbers so we can find them while grading. Before you submit your journal halfway through the course and at the end, **mark the entries you would like graded.**

1. Trip Logs (2 total; 1 pt each)

The trip log is a structured, narrative record of an excursion. Include basic orienting information, a general route description, natural history observations, species lists, approximate travel distances and times, and important route details. This log is a careful summary of observations and field notes taken throughout the day. Entries should take ~20-60 minutes to write-up, but can take longer depending on the day of record. **You will record one day during the first week in Yellowstone National Park, and one day during the backcountry trip during the second week.**

2. Extended Entry (1 total; 4 pts)

This entry should involve more extensive reflection and effort. The purpose of this is to allow you to focus on an aspect of your experience in which you are most interested. Example styles include poetry, detailed drawings, free-writes, or detailed natural history descriptions. For example, students in the past have included detailed study of edible plants, or focused study of certain taxa (e.g., mushrooms, moss, lichen, aquatic invertebrates), or reflections on the ethics of wildlife management. In order to receive full credit, the entry must be inspired by and related to the GYE.

3. Naturalist of the Day (1 total; 4 pts)

This is an in-depth natural history study recorded in your journal that will draw from observations made in your trip log combined with additional research from field observations, field guides, readings, and other references. Specific requirements include observations about identification, habitat, life history, behavior, interactions with other species, etc. Similar to the extended entry, there is ample space to get creative with your NoD. Each student will give an oral presentation of their NoD to the class and should be prepared to deliver it at dinner that night (though it may get delayed a day or two). *The color and number following the NoD in the syllabus corresponds with the discussion number that NoD will lead. Note: discussion topic 2.5 will be in the journal only; those LoDs and NoD will be each expected to ask the speakers two thoughtful questions and discussion topic 4.5 will be shorter and less of a synthesis than typical.*

4. Finding Common Ground (1 total; 6 pts.)

Students will pick a contentious topic from the course and create a diagram expressing the complexity of the issue. Students will identify **each** of the various stakeholders involved in the controversy, their various perspectives, and the values/evidence/scientific merits supporting and/or refuting their various positions. The write up could be turned in the form of a **detailed** and organized diagram, and an accompanying short essay, bullet points, or other form of discussion. Regardless of the presentation method, students will need to demonstrate a thorough treatment and understanding of the complexity of the issue at hand, how the various perspectives relate to one another, and where perspectives **agree and differ**. Conservation solutions start where people share values, these can be hard to see at times, but they are critical in creating progress! **Please note: this is the largest component of the field journal.**

Journal Grading Criteria:

1. **Orienting Information:** All entries must include orienting information including date, time, location, weather, and any other relevant details (this could include habitat type, slope, aspect, etc.).
2. **Entry consistency:** This refers to regular and consistent use of the journal, which you should write in every day.
3. **Organized:** You should be able to use your journal as a reference. Information should be accessible and related to specific dates and locations. Include a table of contents in the beginning so we can find specific assignments, and title assignments appropriately.
4. **Neatness/Readability:** Someone else should be able to use your journal as a reference (or grade it).
5. **Diversity of Expression:** We encourage you to use a diversity of journaling techniques. Avoid using only one form of expression. We will discuss in detail a variety of journaling techniques.
6. **Detailed Observation:** Attention to detail will improve your observation skills.

Readings, Discussion and Class Participation (25%)

We will discuss these readings as a group, with students leading each discussion. Discussion leaders should leave themselves ample time to read the papers a second time before leading discussion. Note that some readings take longer than others to digest. Grades will be based on student participation in the discussions and on participation in other activities (e.g., leader of the day, meetings with biologists, etc.). **We don't insist that each student understand every paper at the onset of each discussion, seeking clarification during discussion is just as valid participation – bringing questions is as welcome as bringing understanding.**

Discussion Leader Write-up (2 total – leader of the day and naturalist of the day; 5 pts. each)

Each student will be responsible for leading the discussion with a partner twice during the course. Before class, the discussion leaders will prepare a brief summary, generate discussion questions, and/or bring up places where they are confused as leaders or where they think their fellow students may get confused. This is a time to be critical and creative – discussion leaders are especially encouraged to design an activity related to the readings that will help everyone learn the material better. **The journal write up must be done before the discussion takes place and should contain notes from the reading** (this could be bullet points, an outline of the reading, or another format that displays intimate knowledge of the reading), **discussion questions for the group, an outline of the activity if applicable, etc.** Discussion leaders should start by making sure everyone understands the main points/ideas in each reading, defining confusing terms, new vocabulary, etc. After the class is on the same page, then the leaders can move on to discussing the implications of the ideas in the paper. *The color and number following the LoD & NoD in the syllabus corresponds with the discussion number that LoD & NoD will lead. Note: discussion topic 2.5 will be in the journal only; those LoDs and NoD will be each expected to ask the speakers two thoughtful questions and discussion topic 4.5 will be shorter and less of a synthesis than typical.*

Readings, Discussion, and Class Participation (15 points)

The remainder of your participation grade will be determined by your general participation in course discussion, your engagement with presenters, the degree to which you participate in team activities (e.g., loading the vans, cleaning, cooking, etc.), and your general eagerness to be a present and contributing member of the group. Participating in group discussions can range from sharing a deep understanding of the reading, to asking questions that help us all gain clarity, to considering new perspectives, etc. The important part is to show that you are engaging with the material and thinking about things critically.

Leader of the Day (points count towards participation)

Each student will be leader of the day once, and this involves helping the instructors lead the group for the day. LoD will get up before the class, heat water for breakfast, wake classmates up at a pre-determined time, make sure both spotting scopes are packed appropriately in the van after observations, help the class transition between activities, ride in the front of the van and help the instructor navigate, etc. We will assign leaders of the day at the beginning of the course, so you might give some thought to when you might like to lead. *The color and number following the LoD & NoD in the syllabus corresponds with the discussion number that LoD & NoD will lead. Note: discussion topic 2.5 will be in the journal only; those LoDs and NoD will be each expected to ask the speakers two thoughtful questions and discussion topic 4.5 will be shorter and less of a synthesis than typical.*

Exams (Midterm: 20%, Final: 25%)

There will be two exams during the course – one midterm and one final. Each exam will consist of short-essay questions based on readings, class discussions, and presentations. The midterm exam is worth 20% of your final grade, and the final exam is worth 25%. The final exam will be cumulative, drawing more heavily from the second half of the course.

VI. General Reminders

Academic Integrity is as relevant in this field course as it is at your home institution. Plagiarism (using the ideas or materials of others without giving due credit), cheating, or aiding another to cheat (either actively or passively), will result in a zero for the assignment and will be reported to your home institution.

Assignment Deadlines are established to enable everyone to participate with course activities and facilitate timely grading. Therefore, deadlines are firm. If you believe that extenuating circumstances have prevented you from completing your work on time, make sure to discuss this with the faculty before the work is due.

Participation and Attendance are absolutely crucial throughout this program. Students are expected to make multiple contributions to every class discussion, ask questions of guest speakers, and be demonstrably engaged during every course activity. Because of the demanding schedule and limited time, all components of the program are mandatory and missing even one class can have a proportionally greater effect on your final grade. It is important to be prompt and prepared (i.e., having done the required reading, with appropriate equipment) for all activities.

VII. Reading List

Required Reading

The course reader will be provided via email as a PDF file about a month before the course begins. A schedule will be included so you know which readings will be discussed each day. **It is imperative that students read the assigned papers before discussion** – it is a very small group and it becomes clear very quickly who has done the reading and who has not. Every student is to contribute to every discussion, so it is very difficult to hide being unprepared for class. Other books and scientific papers will be made available on these topics through the course library we have with us.

Recommended Pre-Course Reading

We cover a great deal of content in this two-week course. **We highly recommended reading the introductory readings from the course reader before arriving** (the first couple days of readings as well as Appendix 1&2) to become familiar with the history, ecology, and management of the GYE.

Optional

If students are looking for additional resources, we recommend the following:

1. *The Yellowstone Resources and Issues Handbook*: <https://www.nps.gov/yell/learn/resources-and-issues.htm> (top choice)
2. *Yellowstone's Northern Range: Complexity and Change in a Wildlands Ecosystem*. Available from Yellowstone National Park: <https://archive.org/details/yellowstonesnort00mamm>
3. *Searching for Yellowstone: Ecology and Wonder in the Last Wilderness*. Paul Schullery
4. Any of the numerous books dealing with Yellowstone wolves and bears by Hank Fisher, Gary Ferguson, Frank Craighead, Paul Schullery, and Doug Smith.