

## **BIOL 520 - Animal Biodiversity In The Greater Yellowstone Ecosystem**

**Instructor:** Jay Rotella

**Office:** 308 Lewis Hall

**Catalog Data:** Summer term (2 credits)

Exploration of biodiversity's meaning, importance & determinants; key ecological features of the Greater Yellowstone Ecosystem and patterns of change in those features: & possible strategies for maintaining biodiversity in the Greater Yellowstone Ecosystem.

**Prerequisite:** BIOE 370, F&WL 301, BIOE 405, or equivalent and (a) 2 years science technology experience or (b) enrolled in MSSE.

**Class Schedule & Format in General (further details provided below):**

The course consists almost entirely of field trips. The course will meet from 8:30 to noon and 1:00-5:00 on Monday; from 8:00 to ~4:30 on Tuesday, Wednesday, Thursday, and Friday. There will be ample time for discussion of course topics during field trips.

**Learning Outcomes:**

After successfully completing this course, students will:  
be able to

- define “biodiversity” and explain its meaning and importance
- summarize key ecological features of the Greater Yellowstone Ecosystem
- summarize key ecological processes that naturally occur in the Greater Yellowstone Ecosystem
- describe changes in key ecological features & processes of the Greater Yellowstone Ecosystem
- explain the possible implications of key changes in the Greater Yellowstone Ecosystem to the region’s biodiversity
- summarize the key challenges faced by managers tasked with maintaining biodiversity
- discuss strategies for maintaining biodiversity in a changing world

**Grading Scheme:**

Grades will be based on 4 daily assignments (25 points each), a final assignment (50 points), and in-class participation (50 points).

**Student Conduct:**

Montana State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information reference see

[www2.montana.edu/policy/student\\_conduct/student\\_conduct-code\\_2008-2009.htm](http://www2.montana.edu/policy/student_conduct/student_conduct-code_2008-2009.htm)

**Collaboration:**

University policy states that, unless otherwise specified, students may not collaborate on graded material. Any exceptions to this policy will be stated explicitly for individual assignments. If you have any questions about the limits of collaboration, you are expected to ask for clarification.

**Plagiarism:**

Paraphrasing or quoting another's work without citing the source is a form of academic misconduct. Even inadvertent or unintentional misuse or appropriation of another's work (such as relying heavily on source material that is not expressly acknowledged) is considered plagiarism. If you have any questions about using and citing sources, you are expected to ask for clarification.

**Academic Misconduct:**

Section 420 of the Student Conduct Code describes academic misconduct as including but not limited to plagiarism, cheating, multiple submissions, or facilitating others' misconduct. Possible sanctions for academic misconduct range from an oral reprimand to expulsion from the university.

*Section 430 of the Student Code allows the instructor to impose the following sanctions for academic misconduct: oral reprimand; written reprimand; an assignment to repeat the work or an alternate assignment; a lower or failing grade on the particular assignment or test; or a lower grade or failing grade in the course. More serious sanctions require a Conduct Board hearing. You may wish to make explicit the minimum sanction you will impose for willful acts of academic misconduct.*

**Academic Expectations:**

Section 310.00 in the MSU Conduct Guidelines states that students must:

- A. be prompt and regular in attending classes;
- B. be well prepared for classes;
- C. submit required assignments in a timely manner;
- D. take exams when scheduled;
- E. act in a respectful manner toward other students and the instructor and in a way that does not detract from the learning experience; and
- F. make and keep appointments when necessary to meet with the instructor.

In addition to the above items, students are expected to meet any additional course and behavioral standards as defined by the instructor.

**Students with Disabilities**

If you have a documented disability for which you are or may be requesting an accommodation(s), you are encouraged to contact your instructor and Disabled Student Services as soon as possible.

**Student Educational Records**

All records related to this course are confidential and will not be shared with anyone, including parents, without a signed, written release. If you wish to have information from your records shared with others, you must provide written request/authorization to the office/department. Before giving such authorization, you should understand the purpose of the release and to whom and for how long the information is authorized for release.

*Students have the right to access their educational records by appointment. This information is protected by the Family Educational Rights and Privacy Act (FERPA). For more information contact the Dean of Students office at 994-2826.*

**Topics to be Covered:**

1. Gradients in abiotic conditions
2. Gradients in biotic conditions
3. Habitats of GYE
4. Environmental processes
5. Land Ownership
6. Land-use Change
7. Climate Change
8. Wild species of GYE
9. Biodiversity challenges

**Topics for student investigation and reporting**

1. Fire
2. Flooding
3. Diseases
4. Predation
5. Grazing
6. Competition
7. Dispersal
8. Climate Change
9. Habitat Changes
10. Land-use Change
11. Population Connectivity
12. Harvest
13. Water Rights
14. Riparian Ecology
15. Brucellosis
16. Mountain Pine Beetle
17. Spruce Budworm
18. Whitebark-Pine Ecology & Status
19. Aspen Ecology & Status
20. Invasive Species
21. Grizzly bears
22. Elk
23. Pronghorn
24. Moose
25. Bison
26. Bighorn Sheep
27. Mountain Goats
28. Wolverines
29. Mountain Lions
30. Wolves
31. Beavers
32. Pikas
33. Peregrine Falcons
34. Osprey
35. Trumpeter Swans
36. Golden Eagles
37. Clark's Nutcracker
38. Greater Sage-Grouse
39. Cuthroat Trout
40. Lake Trout

