ENSC 360/594 – Applied Ecology

Tue./Thurs. 12:30-1:50 p.m.
Jeanette Rankin Hall 204

Course Syllabus

Instructor: Ethan Smith
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Office: Rankin Hall - EVST 201
Teaching Assistant: Rachel Ackerman
rachel.ackerman@umconnect.umt.edu **Office Hours: Mon/Wed 10-11:30 Rankin M4**

Course Texts: The official text for the majority of this course will be *Elements of Ecology (8th or 9th edition is fine)* by Smith and Smith. The bookstore will not carry the text this fall, and thus the following options are available:

1) Purchase (or rent) the text via online sources such as Amazon.com, Powells.com, etc.
2) Use the copy on course reserve at the Main Library. This will be available for short-term use to either read or photocopy.

I realize that this is short notice, and that shipping can take a week or more. Thus, hard-copies of the first few weeks of readings will be made available to you in class. Supplemental readings will be posted online least one week prior to their assigned reading dates, will be handed out in class, or will be e-mailed to you.

Attendance and Participation

*Regular course attendance and participation is **mandatory**, and will account for approximately **10% of the total course grade**.* The principles of Ecology are interconnected and build upon one another. Thus, students are expected to make up any missed readings and obtain notes from fellow classmates prior to the next scheduled class period.

The quality of our in-class discussions depends upon your ability to be prepared and engaged each day. While some teachers love nothing more than to lecture without ceasing for 90 minutes at a stretch, I prefer to let discussion and student input drive a portion of this class. Please complete any assigned readings PRIOR to the corresponding class period so that we can push our discussions as far as possible.

Assignments

- Assignments will be due at the **beginning** of class on the day that they are due. Late assignments will lose 20% for each day that they are late.

All assignments not completed in class must be in typed, double-spaced, 12 pt. font format.

Course Evaluation/Assignment Value Grade	**Point Total**
- Class Participation	50 pts
- Exams/Take Home Assignments (4)	300 pts
- Field Trip/Engagement Project	100 pts
- Final Exam	150 pts
Total	600 pts

Final Grade	Point Totals

A	540-600
B	480-539
C	420-479
D	360-419
Fail	Below 360

Field Trip/Engagement Project: This course has a required component that occurs outside of the normal course instructional period. A detailed explanation of this project will be provided to you separately on the first day of class.

Graduate Student 594 Requirement: In order to satisfy the standards of graduate level coursework, any students enrolled in ENSC 594 will have an additional project/paper requirement. This assignment will be assigned later in the semester, and is nothing to be afraid of.

Disability Accommodation: **S**tudents with disabilities may request reasonable accommodations/modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. The term "reasonable" in this case means that the University permits no fundamental alterations of academic standards or retroactive modifications.

Academic Conduct: Though it should be understood without bring stated, the submission of any work that is not originally your own shall constitute plagiarism and be treated as academic misconduct. This includes the copying of any homework, sharing answers during quizzes or exams, or submitting written work without the clear citation of your sources. Scientific and academic fraud not only diminishes the reputation of an individual, but can tarnish the work of other, honest scientists working within the field. It's not worth it. For the sake of scientific truth, and the sake of your grade, don't do it.

Students wishing to clarify rules regarding plagiarism and/or academic misconduct should consult section IV of the University of Montana Code of Conduct.

Learning Outcomes: At a minimum, individuals successfully completing this course should expect the following:

1. Students will understand how ecological field studies are designed including considerations of sampling, hypothesis testing, and methodology.
2. Students will understand major ecosystem principles including ecosystem organization, the influence of abiotic factors on ecosystems, and energy flow.
3. Students will understand how ecological communities are formed; change over time; and the interactions, both biotic and abiotic, shaping those communities.
4. Students will understand the basic principles of population dynamics including genetic diversity, population growth, population viability and conservation approaches.
5. Students will understand the basic principles of watershed conservation.
6. Students will understand how ecological principles can be applied to real world questions of human impact on natural systems through study design, interpretation and management action.
7. Students will experience how ecological principles are being applied in Montana to solve environmental problems.

8. Students will gain experience and skills to present scientific information to an eco-literate audience. **Tentative Course Schedule***

***dates subject to change with reasonable notice**

*****EOE is Elements of Ecology, followed by the chapter assigned. All other readings will be provided to you.

Day/Date	Class Topic	Reading	Due
Tue. Aug 28	Introductions, Syllabus, Course Goals, etc.		
Thurs. Aug 30	**The Nature of Ecology**	EOE 1	
Tue. Sept. 4	**Climate**	EOE 2	
Thurs. Sept. 6	**The Aquatic Environment**	EOE 3	
Tue. Sept. 11	**The Terrestrial Environment**	EOE 4	
Thurs. Sept. 13	**Ecological Studies and Experimental Design**	Cox 1-3	
Tue. Sept 18	**TBD Project Day**		
Thurs. Sept 20	**Nutrient Cycling and Decomposition**	EOE 21	
Tue. Sept 25	**Nutrient Cycling and Decomposition Cont.**		
Thurs. Sept 27	**Environmental Toxins**	AEEM 9	
Tue. Oct 2	**Plant Adaptions to the Environment**	EOE 6	**.**
Thurs. Oct 4	**Animal Adaptations to the Environment**	EOE 7	
Tue. Oct. 9	**Adaption and Natural Selection**	EOE 5	
Thurs. Oct. 11	**Populations**	EOE 8	
Tue. Oct. 16	**Community Structure**	EOE 16	
Thurs. Oct. 18	**Factors Influencing Community Structure**	EOE 17	
Tue. Oct. 23	**Community Dynamics**	EOE 18	
Thurs. Oct 25	**Population Growth**	EOE 9	
Tue. Oct 30	**Life History**	EOE 10	
Thurs. Nov. 1	**Intraspecific Competition**	EOE 11 + 12	
Tue. Nov. 6	*****Election Day – No Class*****		
Thurs. Nov. 8	**Interspecific Competition**	EOE 13	
Tue. Nov.13	**Predation**	EOE 14	
Thurs. Nov. 15	**Parasitism and Mutualism**	EOE 15	
Tue. Nov. 20	**Energetics**	EOE 20	
Thurs. Nov. 22	**Thanksgiving – No Class**		
Tue. Nov. 27	TBD		
Thurs. Nov. 29	**Rangeland Ecology**	TBD	
Tue. Dec. 4	**Fire Ecology**	TBD	
Thurs. Dec 7	TBD		
Monday Dec. 10	*******Final Exam 10:10-12:10*******		