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ENSC 594.01: Graduate Seminar - Applied Ecology

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ENSC 594.01 Applied Ecology

Instructor: Len Broberg

len.broberg@umontana.edu

406-243-5209

Zoom Office Hours: W 10:30am- 12 noon & 3:00-4:30 pm

Purpose of the course: This course is designed to give students a solid foundation in the concepts of ecology. Focus will be on how those concepts are actualized in solving environmental challenges.

Text: Elements of Ecology, TM Smith & RL Smith, 8th or 9th Edition

Tentative Course Schedule*

*dates subject to change with reasonable notice

Day/Date	Class Topic	Reading 9th ed	Reading 8th ed
August 20	Intro and the Nature of Ecology	EOE 1	Same as 9 th ed unless shown
August 25	Climate	EOE 2	
August 27	The Aquatic/Terrestrial Environment	EOE 3&4	
September 1	Ecological Studies Design	Cox 1-3	
September 3	Ecological Studies Design	Cox 1-3	
September 8	Environmental Toxins and Remediation	AEEM 9	
September 10	Systems and Cycles	TBD	
September 15	Adaptation and Natural Selection	EOE 5	
September 17	Plant Adaptions to the Environment	EOE 6	
September 22	Plant/Animal Adaptions to the Environment	EOE 6 & 7	
September 24	Animal Adaptations to the Environment	EOE 7	
September 29	Populations & Metapopulations	EOE 8	EOE 8 + 12
October 1	Population Growth	EOE 9	
October. 6	Extinction Processes and Population Viability	Moodle	
October 8	Life History	EOE 10	
October 13	Intraspecific Competition	EOE 11 + 12	EOE 11 + 13
October 15	Interspecific Competition	EOE 13	EOE 14
October. 20	Predation	EOE 14	EOE 15
October 22	Parasitism and Mutualism	EOE 15	EOE 16
October 27	Landscape Ecology, Connectivity and Permeability	Moodle	
October 29	Road Ecology	Moodle	

Day/Date	Class Topic	Reading 9th ed	Reading 8th ed
November 3	Community Structure	EOE 16-17	EOE 17-18
November 5	Community Dynamics	EOE 18	EOE 19
November 10	Election day- no class		
November.12	Ecosystems	EOE 22-24	EOE 21+22
November 17	Course Review		
November19, 3:20-5:20 pm	Final Exam		

Participation, Assignments & Grading

This course will work best if you come to class having read the material ahead of time and prepared to discuss and apply the ideas. Thus, class participation is a major portion of the grade.

Class Participation will also include completion of 2 out of classroom sessions to be designated later.

Students will complete 3 take home exams, the first of which will be centered on an ecology paper they will read and apply the concepts of the first section of the course to. A final exam will be given in the final exam period

Students will then do a presentation in class on another ecological study they select and a paper evaluating the study and its ecological and applied importance.

Grading Points

Class Participation: 100 pts

4 tests: 100 pts each= 400 pts total

Total Points: 500

Office Hours

Prof. Broberg has Zoom office hours that are available for drop-in consultation.

Wed morning 1030-12 noon: <https://umontana.zoom.us/j/92196219592>

- Wed afternoon 300-430 pm: <https://umontana.zoom.us/j/92196219592>

Len is also available at other times by appointment. You may make appointments in class, by email or by telephone.

Instructor Max Hanson has Zoom office hours as follows:

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 how ecological principles can be applied to real world questions of human impact on natural systems through study design, interpretation and management action.
6. Students will understand how ecological principles are being applied to solve environmental problems and be able to articulate concepts and methods to address such issues.
7. Students will gain experience and skills using scientific information.

Coping with Coronavirus

The following actions to protect ourselves and each other as best as possible are required when the course meets face-to-face:

- Mask use is required within the classroom
- Each student is provided with a cleaning kit. The expectation is that students will clean their personal work space when they arrive for class, and before they leave the classroom
- Classrooms may have one-way entrances / exits to minimize crowding
- Students should be discouraged from congregating outside the classroom before and after class
- Specific seating arrangements will be used to ensure social distancing and support contact tracing efforts
- Class attendance will be recorded to support contact tracing efforts
- Drinking liquids and eating food is discouraged within the classroom (which requires mask removal)
- Information on the nearest “refill” stations for cleaning supplies/hand sanitizer if applicable
- If the class is being recorded, students must be notified of the recording
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms
- If the student is sick or displaying symptoms, please contact the Curry Health Center at (406) 243-4330
- Up-to-Date COVID-19 Information from the University of Montana
- UM Coronavirus Website: <https://www.umt.edu/coronavirus>

- UM COVID-19 Fall 2020 website: <https://www.umt.edu/coronavirus/fall2020.php>
- Strongly encourage students to remain vigilant outside the classroom in mitigating the spread of COVID-19

Disability modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Student Conduct Code

Plagiarism or other misconduct as defined in the [Student Conduct Code](#) will result in sanctions possibly including receiving a failing grade for the course and referral to a formal misconduct process