

Role of plants in the environment
ENSC 210 (3 cr.)
Spring 2018

INSTRUCTORS: Drs. Amy Trowbridge & Lisa Rew
TEACHING ASSISTANT: Mallory Morgan

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OFFICE HOURS: By appointment

CREDIT: 3 cr.

PREREQUISITES: None, although BIOB 160 or 170 is preferred

TERM: Spring semester 2017

TIME: TTR 1:40-2:55pm

LOCATION: AJM 251

COURSE WEBSITE: D2L

TEXT: *Plant Ecology Origins, Processes, Consequences* (2017) Paul A. Keddy Second Edition, Cambridge University Press.

DESCRIPTION:

We will provide a basic introduction to plant ecology approaching ecological issues from a range of temporal and spatial scales with an emphasis on how changes in plant physiology at the biochemical and individual scale can impact processes and function within whole ecosystems. We will study ways in which plants respond to abiotic and biotic factors in their environment and how these responses influence the distribution and abundance of plant species at local, regional, and global scales. The course design emphasizes the idea that students often learn better through a diversity of media, when working in cooperative groups, and through an active discovery of information. Thus, we employ teaching and learning strategies similar to the inquiry-based scientific method to help students quantify processes observed in nature and give undergraduates the tools they need to be successful budding researchers, naturalists, and citizens. As such, a portion of class is devoted to developing critical thinking and scientific skills with an emphasis on both individual and group work and in-class discussion.

STUDENT LEARNING OUTCOMES:

- Become familiar with basic plant biology and physiology including how plants interact with abiotic and biotic components of ecosystems
- To understand how plants sense and respond to a changing environment and how changes alter fitness at the individual, population and community scales

- Understand the basics of plant growth and population dynamics
- Gain insight into the ways in which species interactions and the environment determine community composition and structure
- Identify factors influencing plant species distributions on a local to global scale
- Develop testable hypotheses and derive research objectives from observations in natural systems
- Discuss the application of the scientific method to address student-led questions in plant ecology and physiology
- Think critically about assigned readings and the application of findings to major ecological issues and goals
- Effectively communicate scientific findings through clear writing and oral presentations

COURSE ACTIVITIES:

Lecture, discussion, literature readings, hands-on experience with plant ecology and physiology research tools, semester long project exploring the vegetation in a familiar location, exams (mid and final).

COURSE GOAL:

Provide 1) an overview of plant ecology and physiology as a function of biotic and abiotic variables, 2) the foundation for applying the scientific method to pressing plant ecological issues, and 3) the tools to critically evaluate and communicate scientific findings.

GRADING AND ASSIGNMENTS

Assessment of learning will consist of two exams, a semester long project, short reading/writing assignments, and student-led in-class discussions on chapter readings as well as discussions from assigned primary literature.

Exams: Exams will only include material covered in lecture and any major topics from assigned literature readings. The format will be a combination of matching/fill-in the blank and short answer/essay.

Individual Semester Project: The aim of this semester long project is to integrate class materials about plants with an environment each student knows well, potentially where they grew up. As the semester progresses students will be asked to investigate specific aspects of plant ecology and physiology that relates to the current chapter *and* to their chosen location. This information will be collated in a report. The first version of the report will be submitted and graded at spring break. Students will receive comments and suggestions on their report and should correct/edit areas that need to be addressed. Students will then add new information over the second part of the semester and a final version of the report will be submitted containing all information from start to finish of semester and graded at the end of semester.

Reading/Writing Assignments and In-Class Discussions: Students will be expected to have read the assigned readings before coming to class. In most class periods there will

be at least one discussion based on the chapter readings and all students will be expected to participate. *Participation will be graded.* In addition, students will be required to answer questions regarding specific chapter readings--a total of 4 question sets for the semester (2 before and 2 after the midterm)--which will be graded. *Late assignments will receive a 5% reduction per day, and should be discussed with instructors before the assignment due date.*

Primary Literature Discussions: To help students learn to critically read and interpret scientific papers, the class will be expected to read a total of six primary literature articles. Each week one group of four students will be in charge of leading a thorough discussion, which will include a 20-30 minute power point presentation. Participation in all discussions will be evaluated and graded. Students can find the rubric for how the primary literature discussions will be graded on D2L.

Individual Writing Projects – 100 pts (2 reports 50 pts each)
Chapter Questions Submission – 40 pts
In-Class Discussions – 60 pts
Primary Literature Discussions: 30 pts
Midterm Exam –100 pts (on first half of the course)
Final Exam – 100 pts (on second half of the course)

Final Grades calculated out of **430 points.**

The Final Examination for this course will take place during the time period identified in the Schedule of Finals Week Exams published by the Registrar.

http://www.montana.edu/registrar/exams/201830%20Finals%20Week%20Exam%20Schedule_1.pdf

Our final exam is scheduled for 12-1:50 on May 2nd, 2018

Grades are calculated as follows:

A >94	B+ 87-89.9	C+ 77-79.9	D+ 67-69.9	F <60
A- 90-93.9	B 84-86.9	C 74-76.9	D 64-66.9	
	B- 80-83.9	C- 70-73.9	D- 60-63.9	

Students must turn off phones, tablets, laptops, etc. during class unless of course the student has a specific learning need for a laptop/tablet. All power point presentation slides will be uploaded to D2L after class, but students are encouraged to write notes during lecture/discussion.

Behavioral Expectations

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 http://www2.montana.edu/policy/student_conduct/cg600.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. [MSU detailed statement on academic writing and student responsibilities from the MSU Dean of Student's Office and MSU Writing Center that can be used for syllabi.](#)

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.

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.

Withdrawal Deadlines

After the official drop deadline, we will only support requests to withdraw from this course with a "W" grade **if** extraordinary **personal** circumstances exist.

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.

Email Policy

We expect that you will check your university email at least every two days and check D2L every day before class.

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.

COURSE SCHEDULE- (topics and dates are tentative)

	Topic	Chapter	Instructor	Due Dates
11 Jan	Introduction to the course; syllabus: Plants create the biosphere	1	Rew	
16 Jan – 18 Jan	Search for global patterns	2	Rew	
23 Jan – 25 Jan	Resources	3	Trowbridge	
30 Jan – 1 Feb	Resources	3	Trowbridge	Chapter 3 Questions (TR)
6 Feb – 8 Feb	Competition	4	Rew	
13 Feb – 15 Feb	Disturbance	5	Rew	Chapter 5 Questions (TR)
20 Feb – 22 Feb	Populations	9	Rew	
27 Feb – 1 Mar	Review MIDTERM		Rew/Morgan	
6 Mar – 8 Mar	Herbivory	6	Trowbridge	Individual writing assignment
13 Mar – 16 Mar	SPRING BREAK			
20 Mar – 22 Mar	Herbivory	6	Trowbridge	Chapter 6 Questions and Primary Literature Discussion (TR)
27 Mar – 29 Mar	Positive Interactions	7	Trowbridge	Primary Literature Discussion (TR)
3 Apr – 5 Apr	Positive interactions	7	Trowbridge	Primary Literature Discussion (TR)
10 Apr – 12 Apr	Stress	10	Trowbridge	Primary Literature Discussion (TR)
17 Apr – 19 Apr	Stress	10	Trowbridge	Chapter 10 Questions and Primary Literature Discussion
24 Apr – 26 Apr	Catch-up		Trowbridge/ Morgan	Individual writing assignment
May 2nd	FINAL		12 – 1:50pm	