

BIO 4990/6990 COMMUNITY ECOLOGY

Tuesday & Thursday 2:00-3:15pm
Classroom: McCain 185

Dr. Brandon Barton

Office: 318 Harned Hall
E-mail: barton@biology.msstate.edu

OFFICE HOURS

By appointment only

COURSE DESCRIPTION

An introduction to theoretical and empirical studies of ecological communities, including their structure, diversity, evolution, and persistence in a changing world.

PREREQUISITES

General Ecology (BIO 3104) or an equivalent course. If you do not meet these requirements, you should discuss your situation with Dr. Barton immediately.

COURSE TEXTBOOK

Community Ecology by Peter Morin (Required)

LEARNING OBJECTIVES

- 1) Define the disciplinary boundaries and central themes of community ecology
- 2) Differentiate among the sub-disciplines within the field and relate these to each other
- 3) Familiarity with primary literature, especially influential papers that shaped the field
- 4) Demonstrate an ability to apply course principles to current environmental topics
- 5) Strengthen important skills, such as writing, speaking, and critical thinking

COURSE FORMAT

- 1) This course is part of the Maroon Institute for Writing Excellence and will be writing intensive. Numerous small assignments will be used to reinforce course subject matter and culminate in a final project, a written grant proposal and presentation.
- 2) Class meetings will generally include a brief discussion and review of the material from the previous class meeting, followed by new material.
- 3) Handouts and online material will be provided as needed for review outside class. These materials may include blogs, primary literature, software exercises, or other study material and their content may appear on quizzes and exams.
- 4) Instead of traditional exams, students will be evaluated with 8 quizzes. These will be given in the first half of the class (approx. 20 minutes) and graded in class.
- 5) BIO 6990 students will complete the #15papers challenge, in which they will find, read, and summarize a recent paper on community ecology each week of the course. A subset of these papers will be presented in class by 6990 students, and presented material may be used on quizzes (both 4990 and 6990 students). Details will follow in a separate document.

METHODS OF EVALUATION

<u>Due</u>	<u>Points</u>	<u>Assignment</u>
1/17	5	Why biodiversity matters
1/26	5	Species report
2/7	5	Direct effects diagram
2/16	5	Indirect effects diagram
<i>Letter to a politician</i>		
2/28	5	Self-review and rough draft
3/2	5	Peer review for classmate
3/9	15	Letter to a politician essay
<i>Final grant proposal</i>		
3/28	5	Pathway: species to ecosystem service
4/4	5	Approval of study methods
4/13	5	Draft of grant proposal
4/18-25	15	Presentation
4/25	25	Final paper
	80	Quizzes 1-8 (10 pts each)
	25	Class participation
5/1	75	Final exam (Monday May 1, 3-6pm)
Weekly	50	#15Papers (BIO 6990 students only)

BIO 4990: 280 points possible (including 75 point *optional* final exam)

BIO 6990: 330 points possible (including 75 point *required* final exam)

Message for graduate students: the difference between BIO 4990 and BIO 6990

Graduate students will have a similar experience to undergraduates, but there are two big differences. First, you will be held to a higher standard. You are expected to participate in the same lectures and have the same assignments and exams, but you will be graded more rigorously. Second, you will participate in the #15papers challenge. This will require you to summarize a new paper each week, and present some of those papers to the class. Third, the exam is required (i.e., not optional) for graduate students.

FINAL LETTER GRADE SCALE

*Decimals will be **rounded up** to the nearest whole number*

100-90	A
89-80	B
79-70	C
69-60	D
59-0	F

CLASS SCHEDULE AND DUE DATES *(All dates and topics are subject to change)*

Wk.	Date	Writing Project Deadlines	Ch.	Content
1	1/10			Syllabus and Introductions. What is ecology? Market and non-market ecosystem services of biodiversity
	1/12		1	QUIZ 1 ; What is a community? Intelligent tinkering.
2	1/17	Why does biodiversity matter to you?	P.27 - 29	Exponential and logistic growth; carrying capacity
	1/19			Population growth models: time lags, cycles, etc
3	1/24		2	QUIZ 2 ; Competition: mechanisms and models
	1/26	Species report	2/3	Competition: models, zero growth isoclines, and experimental approaches
4	1/31		3	Competition: empirical examples and summary
	2/2			QUIZ 3 ; Introduction to predation
5	2/7	Direct effects diagram	4	Predation: empirical patterns and examples
	2/9		4	Predation: empirical patterns and examples; introduction to models
6	2/14		5	Predation: simple models
	2/16	Indirect effects diagram	5	Predation: multiple predators, multiple prey
7	2/21		6	QUIZ 4 ; Food webs
	2/23		6	Nutrient/energy flow, ecosystem ecology
8	2/28	Self review and rough draft sent to me by 5pm 2/27	7	Mutualism
	3/2	Peer reviews returned in class	8	Indirect effects I
9	3/7		8	Indirect effects II
	3/9	Letter to a politician		QUIZ 5 (comprehensive)
10	3/14 3/16			Spring break
11	3/21			Climate change models, predictions, and consequences
	3/23			Climate change continued; experimental design and the scientific method
12	3/28	Pathway: your species to your valued ecosystem service	9/13	Priority effects, community assembly rules
	3/30		10	QUIZ 6 ; Habitat selection
13	4/4	Methods for approval	11	Spatial dynamics, Island Biogeography
	4/6		12	Causes and consequences of Biodiversity
14	4/11		14	QUIZ 7 ; Applied Community Ecology I
	4/13	Draft of final paper	14	Applied Community Ecology II
15	4/18		---	QUIZ 8, Presentations
	4/20		---	Presentations
16	4/25	Grant proposal	---	Presentations
	4/27		---	Reading day
17	5/1			FINAL; Monday, May 1, 3-6pm

COURSE POLICIES

Attendance is required

Your attendance is required at every scheduled class meeting.

Students with disabilities

The University understands that each individual has a unique set of abilities and limitations, and the institution's intent is to integrate every student as completely as possible into regular student life activities. Accommodations will be made, as necessary, in cooperation with Student Support Services to fulfill this intent; however, it is the student's responsibility to make his or her needs known.

Missed quizzes and late assignments

To view the university policy on absences, including a list of excusable absences, visit: <http://www.policies.msstate.edu/policypdfs/1209.pdf>

Missed quizzes cannot be made up, but will be excused with approved absences. Assignment deadlines will be extended the same number of days as your approved excuse.

Assignments turned in up to 24 hours late will be penalized 25%. Assignments more than 24 hours late will not be accepted or graded.

E-mail

I encourage you to communicate with me using email, but I ask that you do so in a professional manner. This includes using professional and grammatically correct writing style with clearly presented ideas and questions. While I will often respond quickly and outside normal school hours, this may not always happen. Additionally, I reserve the right to not respond to unprofessional emails, or any asking some form of the following questions:

- What is my grade? How many points do I need to get a (A, B, etc.)?
- Can I have extra credit?
- Is there a curve? Can you round my grade up?
- What did I miss or did I miss anything important when I was absent?
- Can you give us a study guide?
- Or, questions that are answered in this syllabus

Disruptive behavior

Behavior in the classroom that detracts from an atmosphere conducive to learning will not be tolerated and students that are disruptive will be asked to leave. Wireless devices of all types must be *turned off* (such that they are completely silent) while in class.

Unless explicitly allowed by the instructor, no electronics may be used during class. This includes laptops, phones, smart watches, etc.

To summarize, if you engage in any behavior that is disrupting my ability to teach or a student's ability to learn, you will be asked to leave and lose class participation points.

Student Honor Code

Mississippi State has an approved Honor Code that applies to all students. The code is as follows: "As a Mississippi State University student, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do." Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code. For additional information, please visit: <http://honorcode.msstate.edu/policy/>.

Title IX

MSU is committed to complying with Title IX, a federal law that prohibits discrimination, including violence and harassment, based on sex. This means that MSU's educational programs and activities must be free from sex discrimination, sexual harassment, and other forms of sexual misconduct. If you or someone you know has experienced sex discrimination, sexual violence and/or harassment by any member of the University community, you are encouraged to report the conduct to MSU's Director of Title IX/EEO Programs at 325-8124 or by e-mail to titleix@msstate.edu. Additional resources are available at <http://www.msstate.edu/web/security>, or at <http://students.msstate.edu/sexualmisconduct/>.

FERPA statement

The Family Educational Rights and Privacy Act (FERPA) is a Federal Law designed to protect the privacy of student academic records. To learn more about how your information is shared and who has access to it, please visit the following website: <http://www.legal.msstate.edu/ferpa.php>.

Multiple final exams

Students should not have to take more than two final examinations in a given day. For more information on the approved process for rescheduling exams, see Academic Policy 12.04. <http://www.msstate.edu/dept/audit/1204.html>

Academic Misconduct Policy adapted from the MSU Student Handbook and materials made available by Dr. Gary Ervin.

ACADEMIC HONOR CODE Cheating, plagiarism, or any other form of academic dishonesty will not be tolerated. Any violation will be dealt with according to University policy as described in the MSU student handbook and the University web site (<http://www.honorcode.msstate.edu/>). MSU Libraries provide an online guide to help in understanding how to appropriately cite other peoples' work – and specifically on how to avoid plagiarism. (<http://library.msstate.edu/content/templates/level2tutorial.aspx?articleid=393&zoneid=76#students>)

DEFINITION OF ACADEMIC MISCONDUCT Any activity that may compromise the academic integrity of the University. Academic misconduct includes, but is not limited to, deceptive acts such as:

- Using unauthorized materials (crib notes, books, etc.) as an aid during an examination.
- Looking at or using information from another person's examination, report, or assignment.
- Providing assistance to, or receiving assistance from, another person in any prohibited manner.
- Possessing or providing an exam or assignment, or any part thereof, at in any unauthorized manner.
- Taking a quiz, exam, or similar evaluated assignment for another person; or utilizing another person to take a quiz, exam, or similar assignment in place of oneself.
- Submitting any course materials or activities not the student's own, allowing such a submission to be made for oneself, or making such a submission for another.
- Using the ideas, organization, or words of another from a book, article, paper, computer file, or other source in any assignment without giving proper credit following accepted citation rules (plagiarism).
- Altering, stealing, and/or falsifying research data.

SANCTIONS AGAINST ACADEMIC MISCONDUCT When it is determined by the Honor Code Council or a faculty member that a student has violated the MSU Honor Code, *the normal sanction assigned for a first offense will be an "XF" for the course*, probation, and a requirement to complete the Academic Integrity Intervention Program. The Honor Code Council or faculty member will only impose a lesser grade sanction (a lowered course grade rather than an F) in exceptional circumstances, such as a case where the assignment involved is a minor part of the final course grade. The dishonesty notation ("X"), probation and the intervention program will be required with all grade sanctions. If a faculty member wishes to impose a more severe penalty than an XF, then the case must be referred to the Honor Code Council. The Honor Code Council has the authority to remove a student from the University, even for first offenses. Decisions by the Honor Code Council Hearing Panels are binding on all parties.

Acknowledgment of Understanding By signing below, the student acknowledges that s/he has read and understands the University policy on Academic Misconduct. Further, the student acknowledges that any act that may be interpreted as misconduct will be subject to action in accordance with the policy. The act does not necessarily have to be a willful and deliberate violation of the University policy in order for disciplinary actions to be initiated. Thus, it is in the student's best interest to act in such a manner as to avoid creating or becoming part of a situation in which the appearance of misconduct is evident. Finally, the student understands that it is his/her responsibility to inquire with the instructor or his representatives (e.g., teaching assistants) if a situation arises which could be interpreted by the instructor or others as a violation of the policy on misconduct.

Student name, printed Student number

Student signature Date

Grades will not be assigned in this course for students who fail to sign & return this form to the instructor