Course Title: Community Ecology (IB 453/NRES 452)
Professor: Dr. Brian Allan (ballan@illinois.edu)
Teaching Assistant: Aiden Schore (aschore2@illinois.edu)
Class Times: M/W 1:00-1:50 PM; F 11:00-11:50 AM or 1:00-1:50 PM
Location: 2020B Natural History Building
Office Hours: Online via course website and by appointment
Website: https://canvas.illinois.edu/

Grading (500 points total):

Exam 1	100 pts
Exam 2	100 pts
Final Project	100 pts
Discussion Assignments	105 pts (15 pts each)
Pre-Discussion Questions	35 pts (5 pts each)
In-Class Exercises	60 pts (3 pts each)

Course Description: Welcome to Community Ecology! This course will explore the direct and indirect interactions among species that determine the structure and composition of plant and animal communities. Emphasis will be on the maintenance of species diversity and its consequences at both local and regional scales. Beyond the course material, your instructors place an emphasis on helping you develop skills that will be useful to you in whatever career you choose to pursue. In that vein, desired student learning outcomes include: using critical thinking skills and quantitative reasoning to solve problems, reading and evaluating primary scientific literature, and working collaboratively. A variety of in-class exercises will be utilized to help you develop these skills and enhance learning.

Prerequisites: IB 203 or consent of instructor.

Learning Philosophy: While many college-level courses in the sciences focus on rote memorization and multiple choice-style exams, educational studies show this results in a low level of comprehension and retention of the material. In this class, we will utilize a variety of techniques to encourage development of higher-order cognitive skills and understanding (e.g., the ability to look at a graph and understand what was the scientific hypothesis being tested). As such, exams will be designed to evaluate both comprehension of the material *and* higher-level reasoning skills. In-class exercises and discussions will be used to help students develop these skills and prepare for this style of examination.

Textbook: The recommended textbook for this course is the 2nd edition of Community Ecology by Mittelbach and McGill. There are copies on reserve for purchase at the Illini Bookstore, it is also available for purchase as an e-book, and PDFs of individual chapters are available.

Discussions and Pre-Discussion Questions: Over the course of the semester, Friday Discussions will be used to familiarize students with how to read and interpret the scientific literature. Prior to assigned Discussion times, students should work in groups to: 1) conduct a literature search to identify and read a paper published in a scientific journal related to the assigned topic, 2) complete a Pre-Discussion Question form and submit via the course website before their assigned Discussion section time starts, and 3) complete a Discussion Assignment form in class with their partners to turn in by the end of the Discussion section time.

In-class Exercises: During each lecture students will be presented with a variety of "in-class exercises", the goal of which will be to augment student learning and participation, particularly at higher levels of cognitive reasoning (e.g., synthesizing ideas across scientific disciplines, critical evaluation of data, etc.). These exercises will be graded based upon completion of the activities and a qualitative evaluation of the effort.

Final Project: The last ~2 weeks of the course will be devoted to Final Projects. For their project, students will work in teams to complete an assignment and prepare a final presentation. The class times on 4/15, 4/17, 4/19, 4/22, 4/24 and 4/26 should be reserved for working on these projects. ***The results of the Final Projects will be presented by student teams during the last classes on 4/29 and 5/1.***

Class Website: A simple class website has been built using the Canvas course management system. All important materials associated with the class can be found on this website, including an up-to-date syllabus and PDFs of all assigned readings. There is also an online discussion forum, where students can post questions related to class materials or events and expect a quick response from the instructor, TA, or fellow students. Grades and class announcements will also be posted/accessible via the course website.

Missed Exams: Students with a documented excuse for missing an exam will be offered an opportunity to take a make-up exam at the discretion of the course instructors. To receive permission to take a make-up exam, documentation for the reason for missing the scheduled exam time must be provided. Make-up exams pose a considerable inconvenience to your instructors, so please make every reasonable effort not to miss a scheduled exam time.

Missed Lectures: Students with a legitimate excuse for missing a lecture can recover the missed points from the in-class exercise by watching a recording of the lecture (if available) and completing the in-class exercise questions. Students must obtain instructor permission to access the recorded lecture and should submit the in-class exercise questions within one week of the missed class.

Missed Discussions: Students with a legitimate excuse for missing a discussion can recover the missed points from the Discussion Assignment by completing a make-up assignment. Students must obtain instructor permission and should submit the make-up assignment within one week of the missed discussion.

Re-grades: Students who wish to dispute an exam grade may submit their exam for a re-grade. However, the entire exam will be re-graded, with the potential outcome that the grade may go up, down, or stay the same. Re-grades must be submitted in class within one week of the return of the exam, and include a concise, typed letter explaining the reason for the re-grade request.

Academic Integrity: It is the expectation of the course instructors that students will conduct themselves with the utmost integrity and honesty and adhere to the guidelines of the UIUC Student Code. For reporting academic integrity infractions, this course will follow the procedures outlined in the Student Code, using the FAIR system. Completing in-class exercises or other assignments for other students is considered cheating by both parties and will be reported.

Disability Accommodations: Students with disabilities who require assistance to participate in this class are asked to discuss any requested accommodations with the course instructor as soon as possible.

Statement on Diversity: Diversity is a fundamental concept to the field of ecology, and many ecologists devote their careers to studying the benefits of diversity in nature. Thus it should come as no surprise that we can also derive many benefits from diversity in the classroom. It is the intent of the course instructors that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let us know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let us know so that we can make arrangements for you.

Grade Range:
A+ = 99.5-100, A = 93.5-99.4, A- = 89.5-93.4
B+ = 86.5-89.4, B = 83.5-86.4, B- = 79.5-83.4
C+ = 76.5-79.4, C = 73.5-76.4, C- = 69.5-73.4
D+ = 66.5-69.4, D = 63.5-66.4, D- = 59.5-63.4
F = 59.4 or below.

Week	Date	Unit	Topic	Assignment
1	1/17	Introduction	Welcome	
	1/19		1. Introduction: Community Ecology's roots	Chapter 1
2	1/22	Part I: The Big Picture	2. Patterns of biological diversity: Part I	Chapter 2
	1/24		3. Patterns of biological diversity: Part II	
	1/26		Discussion: Find and read a scientific paper related to lectures 1-3	**Pre-Discussion Questions**
3	1/29	Part I: The Big Picture	4. Biodiversity and ecosystem functioning: Part I	Chapter 3
	1/31		5. Biodiversity and ecosystem functioning: Part II	
	2/2		Discussion: Find and read a scientific paper related to lectures 4-5	**Pre-Discussion Questions**
4	2/5	Part II: The Nitty-Gritty	6. Population growth and density dependence	Chapter 4
	2/7		7. The fundamentals of predator-prey interactions	Chapter 5
	2/9		Mental health day, no class!	None
5	2/12	Part II: The Nitty-Gritty	8. Selective predators and responsive prey	Chapter 6
	2/14		9. The fundamentals of competitive interaction	Chapter 7
	2/16		Discussion: Find and read a scientific paper related to lectures 6-9	**Pre-Discussion Questions**
6	2/19	Part II: The Nitty-Gritty	10. Species coexistence and niche theory	Chapter 8
	2/21		11. Beneficial interactions in communities: Mutualism and facilitation	Chapter 9
	2/23		Exam 1 Review Session	
7	2/26	Part III: Putting the Pieces Together	**Exam 1**	
	2/28		12. Species interactions in ecological networks	Chapter 10
	3/1		Discussion: Find and read a scientific paper related to lectures 10-12	**Pre-Discussion Questions**
8	3/4	Part III: Putting the Pieces Together	13. Food chains and food webs: Controlling factors and cascading effects	Chapter 11
	3/6		14. Community assembly and species traits	Chapter 12
	3/8		Mental health day, no class!	None
9	SPRING BREAK			
10	3/18	Part IV: Spatial Ecology	15. Patchy environments, metapopulations, and fugitive species	Chapter 13
	3/20		16. Metacommunities	Chapter 14
	3/22		Discussion: Find and read a scientific paper related to lectures 13-16	**Pre-Discussion Questions**
11	3/25	Part V: Species in Changing Environments	17. Species in variable environments	Chapter 15
	3/27		18. Evolutionary community ecology	Chapter 16
	3/29		Find and read a scientific paper related to lectures 17-18	**Pre-Discussion Questions**

12	4/1	Conclusions	19. A look ahead: Part I	Chapter 17
	4/3		20. A look ahead: Part II	
	4/5		Discussion: Find and read a scientific paper related to lectures 19-20	**Pre-Discussion Questions**
13	4/8		Mental health day, no class! Check out the solar eclipse!	None
	4/10		Exam 2 Review Session	
	4/12		**Exam 2**	
14	4/15	Final Projects	Introduction to Final Projects	
	4/17		Final Project Work Time	
	4/19		Final Project Work Time	
15	4/22	Final Projects	Final Project Work Time	
	4/24		Final Project Work Time	
	4/26		Final Project Work Time	
16	4/29	Final Projects	Presentations of Final Projects	
	5/1		Presentations of Final Projects	