BIO300
Community Ecology
Draft Course Syllabus
Term Year

Class Time	Mon, 1-hour period (Lecture) Wed, 1-hour period (Lecture) Fri, 1-hour period (Paper Discussion)
Class Location	TBD
Instructor	David Murray-Stoker
Office Location	TBD
Office Hours	TBD (Hybrid)
E-mail Address	dstoker92@gmail.com

Course Overview
Community ecology at its most basic level seeks to understand a group of species together in space and time. Together, we will progress from this foundational level and the roots of community ecology to more complex topics like species interactions (e.g., mutualisms, competition, predator-prey), food webs, and drivers of community assembly. Lectures will primarily focus on the conceptual background, while paper critiques and discussions will help us evaluate and apply our knowledge to case studies.

Learning Objectives
As you participate and engage in the course, you will be able to:

- Understand different types of species interactions and their ecological and evolutionary consequences.
- Identify the core processes structuring community assembly and diversity.
- Apply your knowledge to communities in changing environments, such as climate change and urbanization.
- Critically evaluate and discuss scientific research.
- Reflect upon your learning and what you have learned through the course.

Coursework
You should expect to complete 10-12 hours of study and work each week for this course, including time spent in lecture. In other words, there will be ~7-9 hours of work outside of lectures and paper discussions for you to complete the readings and course assignments. The course schedule is at the end of the syllabus, but the table below highlights the assignments and their weight towards your final grade.

Type	Description	Due Date	Weight
Lecture Reflections	Directed reflections (4 total)	Ongoing	10%
Reading Assignments	Critical essay on the assigned paper (best of 10, 12 total)	TBD	15%
Paper Discussions	Contributions to paper discussions	TBD	15%
Term Test 1	Take-home term test (lectures 1-18)	TBD	20%
Term Test 2	Take-home term test (lectures 19-29)	TBD	20%
Final Project	Review paper and project on a community ecology topic	TBD	20%
		Total	100%

Notes on Coursework

Reflections (10%): You will complete 4 reflections on recent course topics and to monitor your learning process. These reflections will have directed prompts to guide your reflection, but there will also be an open field for you to expand on any component of the lecture content. Reflections will likely be around 400-500 words (more if desired). Reflections will be submitted through the course website following the schedule at the end of the syllabus.

Reading Assignments (15%): Reading and critiquing scientific papers are essential components of the research process. Before each discussion, you will read the assigned paper, write a critical evaluation of the work, and submit your evaluation through the course website. Each written evaluation will be 1-2 pages (12-point font, Times New Roman or Arial, double-spaced, not including references) will:

(1) Identify the research questions or hypotheses.
(2) Summarize the methods.
(3) Relate the main results.
(4) Determine the key inferences or applications.
(5) Propose next steps, outstanding questions, and/or what could have been improved.

Evaluations are supposed to be critical, meaning both the positives and the negatives of the study or experiment should be considered. You are encouraged to situate your evaluation in the context of other studies, but this is not required. Any references should be appropriately cited in the evaluation and formatted following the *Journal of Ecology* citation style.

Paper Discussions (15%): We will discuss a paper related to the lecture content each week. **Discussions require students to be both present and active to be effective.** We will note attendance at each discussion, and the discussion will be moderated to make sure people have the opportunity to participate. I also recognize that group discussions can be intimidating, so there will be multiple modes of engagement. If you would like me to pose questions for discussion, please send the questions to me via email before the discussion. Similarly, if you would like to respond to a question or discussion point, you may post your reply in the discussion board on the course website. I will monitor the discussion board and vocalize any comments or questions posed on the discussion board. We will also set the expected conduct for the discussions during the first course lecture period (L1, see schedule below).

Term Tests (20% each, 40% total): The take-home term tests will cover specific lectures and be due 72 hours after being released through the course website. The term test will consist of case study evaluations and short answer/essay questions. It will also include directed reflection questions. The term test will be submitted through the course website. The term test will be open book, but you are encouraged to take notes so you can develop knowledge recall and application in preparation for the final exam and when you apply your learning and understanding of ecology to your everyday life.

Final Project (20%): You will write a synthetic review and give a 10-minute presentation on any topic in community ecology. Please submit your intended paper topic via email by the end of week 9, which will allow me to provide any guidance or support.

Review papers should summarize the literature on the topic and identify a gap for future research. Papers should include an introduction and conclusion section, with additional subsections used as needed. The paper should follow the same general formatting of the reading assignments (12-point font, Times New Roman or Arial, double-spaced, not including references). You may also include tables and figures. Additional details will be posted on the course website.

Presentations should also briefly summarize the literature on the topic and identify a gap for future research, but you will deliver this information in a 10-minute presentation. Presentations will be given during the last four lecture periods (see course schedule below), with the schedule announced in class by **TBD**. Additional details will be posted on the course website.

Course Resources

Chapter Readings: Chapter readings will be uploaded to the course website at the start of the term. **Reading the posted chapters before attending and engaging in class is essential.**

If you would like to supplement the chapter readings with a textbook, I recommend the following:
Mittelbach, G. G., and B. J. McGill. 2019. Community Ecology. Second Edition, Oxford University Press. ISBN 9780198835868.

Reading Assignments: Papers for the assigned readings will be posted to the course website at the beginning of the term. Each assigned reading is associated with a specific class discussion (see the course schedule below).

Technology: You will need access to a device (e.g., laptop, tablet) with internet access for lecture activities, email correspondence, using the course website, and completing assignments. You are also encouraged to use a laptop or equivalent device with Microsoft Office installed (software subscription included with your university/college email) or use Google Docs to complete the coursework. **If you do not have reliable access to the internet and/or a suitable device, please contact me so we can find a positive solution.**

R Statistical Software: R is a flexible, powerful, open-source program for statistical analysis that runs on all operating systems. R should be downloaded and installed before the first lecture. You can download R by following this link: https://cran.r-project.org/. I will provide an instructional video on the course website to demonstrate the installation process.

RStudio: RStudio is a graphical user interface that helps to write code and analyze data. RStudio also allows for easy writing of scripts R Markdown files, which will be used to illustrate some concepts in lecture. You can download RStudio by following this link: https://posit.co/download/rstudio-desktop/ . I will provide an instructional video on the course website to demonstrate the installation process and user interface.

Citation Manager: I highly encourage the use of Zotero for reading papers and formatting citations for your final project. Zotero is free software for up to 300 MB of storage, which is plenty of space for BIO300. I use Zotero for reading scientific papers and to manage citations when writing my own papers. I will provide an instructional video on the course website to demonstrate the installation process, and I will also show how Zotero can be used in both Microsoft Word and Google Docs. You can download Zotero from here: https://www.zotero.org/.

Evaluation

We will be using the 'ungrading' approach to all evaluations rather than traditional grading systems. Evaluation and assessment will be more of a conversation between you and me, and we are able to do this through a combination of feedback and reflection.

For assignments evaluated for correctness, I will return 'graded' assignments with a summarized feedback form. I will not provide any written scores, but I will maintain a spreadsheet of scores that each student earned on the assignment. You will evaluate your work and determine the number of points you think you

earned. I will then compare the points I think you earned, your self-assessment, and the average of your score and my score. If my score is higher than your point total, we will typically use my point total. For all assignments evaluated for correctness, you have the opportunity to earn back half-credit for any points that were lost by completing the self-evaluation and reflection.

Below I will expand on the evaluation for each type of coursework and how ungrading will be applied.

Reflections (10%): Reflections are designed for you to articulate what you learned from the course content and document your learning process. I will provide comments and feedback on each reflection, offering advice, clarification, and encouragement as appropriate. I will also be using these reflections to help identify common misconceptions from the chapter readings and/or lecture, so it is important that reflections also discuss challenging topics. Reflections will be evaluated for completion and addressing the directed reflection prompts.

Reading Assignments (15%): We will evaluate each written critique of the assigned reading by determining if it addresses the 5 focal prompts. I will assess if the critique addressed each prompt, and I will also provide feedback on each assignment to correct any misunderstandings and also emphasize creative ideas and insights.

Paper Discussions (15%): Attendance and participation are the two key components because active discussion is critical for everyone to learn. Each discussion session will be weighted by attendance (1/3) and participation (2/3). Participation includes verbal discussion as well as contributions to the course discussion board.

Term Tests (20% each, 40% total): Term tests will cover material from specific lectures (i.e., term tests will not be cumulative). 'Graded' term tests will be returned to the class alongside a summarized feedback form. No points will be written on the term tests, but I will have a spreadsheet of points that each student earned for each test question. Based on your work, the feedback provided on your test, and the evaluation guide, you will write the number of points you think you earned for each question on a separate sheet (available points per question will be noted on the test). This separate sheet will be turned in with corrections along with logical reasoning and arguments over potentially vague or confusing questions.

Final Project (20%): Regardless of choosing a review paper or presentation, all students will receive the same core checklist of items that need to be included in the final project. The checklist will provide the baseline expectations, and the checklist will generally be used to see if that aspect or component was included. Given the variation in selected topics, a standard rubric would not be transferable among students. Moreover, rubrics encourage 'writing to the rubric' and I want you to explore an idea that interests you and find your scientific voice.

Review papers and presentations will have extensive feedback from me and you can use that feedback to determine how many points you think you earned on the presentation. Similar to the term tests, I will maintain a sheet of points I think you earned. You will determine how many points you think you earned on your final project, and I will compare the points from your self-evaluation to my assessment. I will then compare the points I think you earned, the points you think you earned, and the average of your score and my score. If my score is higher than your point total, we will typically use my point total. We can also discuss any discrepancies if you would like to do so.

Teaching Methods

BIO300 is an active learning class where you are part of the learning process. You are expected to come to class ready to engage in the material by participating in lecture and discussion activities, collaborating with your peers, and applying the concepts learned to case studies. **Learning can also bring about discomfort, and I will be challenging you in this course. I will challenge you because I know we all have the potential to grow and learn**. Reflection is also central component of the learning process in this course. I want you to think about what you have learned and how you learned it.

Ungrading is central to this course. While ungrading does require work from both you and me, that work has lasting benefits beyond any single lecture or discussion. I want to help you learn about and have fun with ecology, but I am also here to help you grow as a learner. **Through the process of ungrading, we will stress less on any grade and focus more on learning.**

Lectures: Lectures will expand on aspects of the assigned readings by going into great depth and applying knowledge to case studies and examples. You are responsible for reading the assigned readings before class to get the most out of the lectures. All lectures will be recorded and posted to the course website within 24 hours.

Readings: Reading the assigned chapters is essential to get the most out of lectures, and content and concepts from these chapters will be included on the term tests and will help guide your final project.

Paper Discussions: Paper discussions are a fantastic way to get practice reading and critiquing the scientific literature and they also help synthesize lecture content to practical examples.

Time Management and Learning Practices

If you find you are struggling with time management or keeping up with the material, please come to office hours or we can schedule a private, one-on-one meeting. You may also talk to your academic advisor or go to the Academic Skills Center for guidance and advice on time management and effective learning practices. **I know that every student can succeed in this course, but sometimes the learning environment and support systems just need to be restructured to make that happen**.

Procedures and Policies

E-Mail Policy: The official method of correspondence with students is through their academic e-mail accounts. It is the student's responsibility to keep his/her/their academic e-mail account active and check it on a regular basis.

To help me better respond to emails, please include BIO300 in the subject line and then your student number either in the text or signature of your email. I also ask for patience when responding to emails. I will try to respond as quickly as possible but give me at least 24 hours to respond to any message. I likely will not respond to emails over the weekend, but I will aim to respond to by 5 PM the following Monday.

Attendance and Participation: Attendance is essential for your learning, as is your participation in active learning during lectures and paper discussions. I will not take attendance during lecture, but attendance will be taken during paper discussions.

Absences: Absences from lectures and paper discussions must be communicated to me by email before that class period is over. Please send the email with a brief explanation for the absence. For an absence to be excused, it must meet university/college-approved and beyond-your-control criteria. Absences beyond university/college guidelines may be excused on a case-by-case basis.

Religious Observance: You are encouraged to observe and express your religious identity. I will make reasonable accommodations to allow any student to observe their religious practices without penalty. Please look at the course schedule below and let me know if there are any potential conflicts. Accommodations do not absolve students of responsibility for the coursework, but they can result in extensions.

Late Policy: Term tests will have a penalty of 10% for each day the assignment is late up to a maximum of 3 days, after which late submissions will not be accepted. Only term tests will be accepted with a late penalty; no other assignments be accepted after the due date except for extreme circumstances. I have this policy to encourage you to stay on top of the material, which is to your benefit and that of your peers.

Extensions: If you require an extension to complete an assignment due to injury, illness, or accessibility, please let me know as soon as possible and preferably at least 24 hours advance of the due date. Extensions beyond accessibility and illness will be granted on a case-by-case basis.

Academic Integrity

University/College statement on academic integrity.

Course Schedule

Week	Day	Topic	Readings
1	W	L1: Syllabus & Course Overview	Syllabus
	F	L2: History of Community Ecology	Chapter 1
2	M	L3: What Is Biodiversity?	Chapter 2
	W	L4: Spatial Patterns of Biodiversity I	Chapter 3
	F	D1: Paper discussion	TBD
3	M	L5: Spatial Patterns of Biodiversity II	Chapter 3
	W	L6: Temporal Patterns of Biodiversity	Chapter 4
	F	D2: Paper discussion	TBD
4	M	L7: Niche Concepts I	Chapter 5
	W	L8: Niche Concepts II	Chapter 5
	F	D3: Paper discussion	TBD
5	M	L9: Predator-Prey I	Chapter 6
	W	L10: Predator-Prey II	Chapter 6
	F	D4: Paper discussion	TBD
6	M	L11: Host-Parasite	Chapter 7
	W	L12: Infectious Diseases	Chapter 8
	F	D5: Paper discussion	TBD
7	M	L13: Mutualism I	Chapter 9
	W	L14: Mutualism II	Chapter 9
	F	D6: Paper discussion	TBD
8	M	L15: Competition I	Chapter 10
	W	L16: Competition II	Chapter 10
	F	D7: Paper discussion	TBD
9	M	L17: Food Webs I	Chapter 11
	W	L18: Food Webs II	Chapter 11
	F	D8: Paper discussion	TBD
10	M	L19: Island Biogeography	Chapter 12
	W	L20: Biogeography Gradients	Chapter 13
	F	D9: Paper discussion	TBD
11	M	L21: Local & Regional Processes	Chapter 14
	W	L22: Metacommunity Theory I	Chapter 15
	F	No Class (Fall Break)	
12	M	L23: Metacommunity Theory II	Chapter 15
	W	L24: Metacommunity Theory III	Chapter 15
	F	D10: Paper discussion	TBD
13	M	L25: Coexistence Theory I	Chapter 16
	W	L26: Coexistence Theory II	Chapter 16
	F	D11: Paper discussion	TBD
14	M	L27: Neutral Theory of Biodiversity	Chapter 17
	W	L28: Functional & Phylogenetic Approaches	Chapter 18
	F	D12: Paper discussion	TBD
15	M	L29: Synthesis of Ecological Principles	Chapter 19
	W	No Class (Thanksgiving Break)	
	F		
16	M	**Student Presentations**	
	W	**Student Presentations**	
	F	**Student Presentations**	
17	M	**Student Presentations**	
	W	No Class (Final Exams)	
	F		

L = Lecture, D = Paper discussion. All chapter readings and assigned papers will be posted on the course website.