

# BIO300

## Community Ecology

### Draft Course Syllabus

### Term Year

<b>Class Time</b>	Mon, 1-hour period (Lecture) Wed, 1-hour period (Lecture) Fri, 1-hour period (Paper Discussion)
<b>Class Location</b>	TBD
<b>Instructor</b>	David Murray-Stoker
<b>Office Location</b>	TBD
<b>Office Hours</b>	TBD (Hybrid)
<b>Email Address</b>	<a href="mailto:dstoker92@gmail.com">dstoker92@gmail.com</a>

### 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 (6 total)	Ongoing	15%
Reading Assignments	Critical essay on the assigned paper (12 total)	TBD	20%
Paper Discussions	Contributions to paper discussions	TBD	15%
Term Test 1	Take-home term test (lectures 2-8)	TBD	10%
Term Test 2	Take-home term test (lectures 9-16)	TBD	10%
Term Test 3	Take-home term test (lectures 17-25)	TBD	10%
Final Project	Review paper and project on a community ecology topic	TBD	20%
		Total	100%

## Notes on Coursework

Reflections (15%): You will complete 6 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 (20%): 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 an author-year 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 (or handwritten on paper) 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 (10% each, 30% 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. 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.**

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

Reflections (15%): 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 (20%): 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 and engagement (2/3). Participation includes verbal discussion as well as contributions to the course discussion board.

Term Tests (10% each, 30% total): The take-home term tests will cover specific lectures and be due 72 hours after being released through the course website. The term tests will consist of case study evaluations and short answer/essay questions. It will also include directed reflection questions. The term tests will be submitted through the course website. There is no cumulative final exam, but term tests will require you to understand and apply what you learned in previous units to new contexts. All term tests 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 biology to your everyday life. I will return each term test to you with feedback, noting areas where you did well and pointing out areas for improvement and growth.

Final Project (paper = 10%, presentation = 10% 20% total): You will receive a core checklist of items to include in your final project, with a separate checklist for the paper and presentation. The checklists will provide the baseline expectations. 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.

I will return your final paper with my evaluation of the core checklist, and I will also provide written feedback to guide your self evaluation and reflection. Similarly, I will provide my evaluation of the core checklist for the presentation and also any feedback on the presentation itself.

Final 'Grade': At the end of the semester, you will use all of your completed work and learning to assign yourself a letter grade. You will write a narrative statement to discuss your learning and support your chosen grade. You should not expect to receive a grade on any assignments, but you should expect to conduct frequent self-reflection and receive feedback from me throughout the course. My goal is to help you learn and grow without fear of making mistakes or being penalized as you try something new.

As the course instructor, I reserve the right to change the grade you assigned. Based on previous experience, this typically means I increase student grades. I will notify you of any grade increase and provide my reasoning. In the unlikely situation where I feel the grade you assigned is too high, we will arrange a meeting to discuss our positions and come to an agreement.

## **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**

Email 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 should be communicated to me by email before that class period is over. 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 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.

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	D10: Paper discussion	
12	M	L23: Metacommunity Theory II	Chapter 15
	W	L24: Metacommunity Theory III	Chapter 15
	F	D11: Paper discussion	TBD
13	M	L25: Synthesis of Ecological Principles	Chapter 16
	W	Student Presentations	
	F	D12: Paper discussion	TBD
14	M	Student Presentations	
	W	Student Presentations	
	F	Student Presentations	TBD
15	M	No Class (Final Exams)	
	W		
	F		

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