SPECIAL TOPICS:
COMMUNITY ECOLOGY
BIOL 4803/8803
FALL 2019

Syllabus

Time and Location: TR 4:30 pm – 5:45 pm, Cherry Emerson 204

Professor:
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Office hours: by appointment.

Course Objectives: This is a three credit course suitable for both undergraduate and graduate students interested in learning more about community ecology beyond those covered in the sophomore-level General Ecology. We will examine species interactions and their roles in regulating the structure and dynamics of ecological communities. Classroom discussion of readings from the primary literature, including both classic and recent scientific articles, will be a major component of the course. The main goal of this course is to introduce you to important concepts and issues in community ecology; by the end of the course, you should have a basic understanding of the current knowledge on how ecological communities operate. Another goal of this course is to practice and refine your skills in critically reading and effectively presenting scientific papers.

Textbook: Community Ecology, 2nd edition, Peter Morin, 2011, Wiley-Blackwell. ISBN: 978-1-4051-2411-9.

Course Format: This course will include lectures given by the instructor, presentations given by the students, and class discussions. Class presentations and discussions of assigned journal articles will follow lectures on the same topic. You are required to read all the assigned readings, including selected chapters from the textbook and journal articles, and participate in class discussions. During the semester, you will present several assigned papers using PowerPoint and will be responsible for leading class discussions of these papers. The presentation should be approximately 15-20 minutes, and may include materials outside the assigned paper.

Grades: Your course grade will be based on three (for undergraduates) or four (for graduate students) activities.

First, 50% (40% for graduate students) of your grade will be determined by two take-home exams [mid-term exam: 20%; cumulative final exam: 30% (20% for graduate students)]. The exams will cover materials from the textbook as well as from the assigned journal articles. You will be given one week to schedule the exam, but will be required to complete it within one 3-hour span. You may refer to textbooks, course notes, and primary literature articles while working on the exams, but are prohibited from obtaining information from the internet or discussing with your classmates.

Second, 20% of your grade will be determined by class presentation(s), which is graded by the instructor. Your presentation(s) should include (1) a general introduction of the topic addressed by the research article, (2) questions or hypotheses examined in the article, and why these questions/hypotheses are important, (3) a description of study systems and methodology, (4) results and their significance (i.e., how these results advance our understanding of the subject), and (5) a critique of the paper, that is, your own evaluation of the article (including both its strength and weakness). Good presentations also require effective presentation skills. Both criteria (content and presentation effectiveness) will be used to grade presentations. As a presenter, you should always strive for clarity given the limited amount of presenting time, and should, if appropriate, include other essential information outside the assigned paper (e.g., materials from other relevant papers) to help the audience better understand the topic. The presenter is also expected to lead class discussions on the presented article (e.g., by providing questions for the class to discuss) and answer questions from the audience. These activities will also be graded, forming part of your presentation grades.

Third, 30% (25% for graduate students) of your grade will be determined by class participation, which includes class attendance [15% (10% for graduate students)] and active involvement in class discussions (15%). The expectation is that you need to ask at least one question during each class period.

Fourth, each graduate student needs to submit a research proposal that accounts for 15% of your grade. The proposal should have a maximum of 15 typed double-spaced pages. It should describe a hypothesis-driven research project in the area of Community Ecology, and should be organized into the following sections: “Summary”, “Objectives” or “Statement of the Problem”, “Background” or “Rationale and Significance” (where you provide a review of the relevant ecological literature and explain the significance and novelty of your proposed research), “Hypotheses” or “Research Questions”, “Research Approach” or “Experimental Plan” (where you provide details on your study system, experimental design, and data collection and analysis), and “Literature Cited”. Summary and bibliography are not included in the 15-page limit. Students are encouraged to discuss with the instructor about the topic of their proposals prior to working on them.

Grades will be assigned according to the following scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F. The instructor reserves the right to change these standards based on class performance.

Attendance: Lecture attendance is highly recommended as lectures may cover materials outside the textbook. Class attendance is mandatory for all days when there is presentation. Each unexcused absence will result in the loss of your participation grades on that day, and if you miss a class in which you are presenting without a legitimate excuse, you will lose your presentation grades. Excusable absences include severe illness, death in family, or accident; written documents of these unforeseeable events must be provided to the instructor.

Honor code: Your conduct in this course is expected to conform to the GT Student Honor Code (http://osi.gatech.edu/content/honor-code). I urge you to consult this for a full definition of your rights and responsibilities.

Learning Accommodations: If needed, we will make classroom accommodations for students with disabilities. These accommodations must be arranged in advance and in accordance with the Office of Disability Services (http://disabilityservices.gatech.edu).

Tentative Schedule: This schedule is subject to change.

Week	Date	Topic	Required Readings	Presenter
1	20-Aug	Introduction to community ecology	Ch. 1.	
1	22-Aug	Competition 1	Ch. 2, 3.	
2	27-Aug	Competition 1: paper discussion	Gurevitch (1986) Pacala and Roughgarden (1982)	
2	29-Aug	Competition 2	Ch. 2, 3.	
3	3-Sept	Competition 2: paper discussion	Tilman (1981) Adler et al. (2018)	
3	5-Sept	Predation 1	Ch. 4, 5.	
4	10-Sept	Predation 1: paper discussion	Paine (1966) Lubchenco (1978) Review: Jia et al. (2018)	
4	12-Sept	Predation 2	Ch. 4, 5.	
5	17-Sept	Predation 2: paper discussion	Schmitz (2008) Preisser et al. (2005)	
5	19-Sept	Beneficial interactions	Ch. 7.	
6	24-Sept	Beneficial interactions: paper discussion	Callaway et al. (2002) Palmer et al. (2008)	
6	26-Sept	Parasitism **Midterm exam assigned**		
7	1-Oct	Parasitism: paper discussion	Hudson et al. (1998) Lips et al. (2006)	
7	3-Oct	Food webs and ecological networks 1	Ch. 6, Ch. 7: p183-186.	
8	8-Oct	Food webs and ecological networks 1: paper discussion	Post et al. (2000) McCann et al. (1998)	
8	10-Oct	Food webs and ecological networks 2 **Midterm exam due**	Ch. 6, Ch. 7: p183-186.	
9	15-Oct	**No class: fall recess**		
9	17-Oct	Food webs and ecological networks 2: paper discussion	Estes et al. (1998) Thebault and Fontaine (2010)	
10	22-Oct	Indirect effects	Ch. 8.	

10	24-Oct	Indirect effects: paper discussion	Davidson et al. (1984) Montoya et al. (2009) Review: Wootton (1994) Review: Estes et al. (2011)	
11	29-Oct	Spatial dynamics	Ch. 11.	
11	31-Nov	Spatial dynamics: paper discussion	Mouquet and Loreau (2003) Helmus et al. (2014) Review: Leibold et al. (2004)	
12	5-Nov	Temporal dynamics	Ch. 9 and 13.	
12	7-Nov	Temporal dynamics: paper discussion	Chase (2010) Li et al. (2016) Review: Fukami (2016)	
13	12-Nov	Biodiversity 1	Ch.12	
13	14-Nov	Biodiversity 1: paper discussion	Bell (2001) Levine and HilleRisLambers (2009) Review: Chesson (2000)	
14	19-Nov	Biodiversity 2	Ch. 12	
14	21-Nov	Biodiversity 2: paper discussion	Loreau and Hector (2001) Tilman et al. (2006) Review: Tilman et al. (2014)	
15	26-Nov	Linking evolution with ecology **Research Proposal due** **Final exam assigned**		
15	28-Nov	**No class:** **Thanksgiving break**		
16	3-Dec	Linking evolution with ecology: paper discussion	Yoshida et al. (2003) Violle et al. (2011)	
17	10-Dec	**Final exam due by 4:30 pm, Tuesday**		

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Date: _____

Evaluation Form for Oral Presentations

Speaker: _____

Paper: _____

Overall score: _____

Scale:	100	90	80	70	60
	Outstanding	Excellent	Good	Fair	Inadequate

ITEM	COMMENTS	SCORE
SLIDES (20%): Logic organization of slides and transition among slides, good layout (neither too cluttered nor too spare, no glaring color contrasts), clear readable texts, tables, and figures.		
DELIVERY (20%): Poised and well-rehearsed, good pacing (neither too fast nor too slow), clear voice and good volume, eye contact with audience, stayed on time.		
CONTENT (30%): Did the talk adequately capture the main message of the paper? Did the talk provide sufficient detail on different sections (e.g., introduction, methods, results, and discussion) of the paper?		
LEADING DISCUSSION (30%): Did the speaker ask to-the-point questions? Did these questions stimulate class discussions? Did the speaker do a good job answering questions from the class?		