

BIO 58/BIO 123 – Advanced Community Ecology

Instructor: Mark A. McPeck, 022 LSC

Class Meets in 105 LSC: M,W,F 1010-1115 hr: X-Hour: Th 1215-1305 hr

Office Hours: e-mail me

This is a course about the population and community dynamics of species interactions. We will spend most of our time discussing models of various types of species interactions and how to test the ecological and evolutionary predictions of these models.

Readings: There is no textbook for this course. You are required to read papers from the primary literature. These assignments will be made at the beginning of each new topic. All papers assigned to you can be found via the electronic journals to which Dartmouth subscribes <http://www.dartmouth.edu/~library/biomed/resources/ejournals.html>. You are responsible for getting these papers from the web.

Topic Outline: This course travels at a very rapid pace, each topic builds on what we've covered in previous areas. So, PLEASE, do not let yourself fall behind. The order of topics is as follows:

1. Studying Communities
2. Modeling Population Regulation of One Species
3. One Predator & One Prey in Continuous Time
4. One Predator & One Prey in Discrete Time
5. Interference and Resource Competition
6. Apparent Competition: One Predator and Multiple Prey
7. Omnivory & Intraguild Predation
8. Keystone Predation
9. Mutualisms
10. Neutral Dynamics
11. Evolution of Species Interactions

We will not get to the end of this list, but we will get as far as we can.

Grading: There are no exams in this class. At the end of each major section, we will have a homework assignment which consists of a set of problems. These assignments are due the next class period after assignment. The final homework assignment will be given to you on the last day of classes, and its due date will be specified then. You may of course turn them in early if you like. You will receive a grade of 0 on any homework assignment that is late – no exceptions. They are open book assignments – you may consult any text or literature you like in answering the questions. However, you must work completely on your own on each question, and you may not discuss questions with anyone but Mark McPeck until after the assignment is due. You are strongly encouraged to ask questions in person or via e-mail while you are working on the homework.

Each homework question will be comparable to an essay question on an exam. In each homework, you will be asked to derive some model formulation, evaluate what you develop, and then interpret your results in a biological context. Each homework assignment will be weighted equally in determining your grade.

Dartmouth's Academic Honor Principle

In addition to including the link to the [Academic Honor Principle](#) in your syllabus, it is important that you discuss with your students your specific expectations regarding academic integrity and the Honor Principle in your courses. You might also include [this resource on proper citation of sources](#). Additionally, please consider clarifying under what circumstances it is acceptable to you for students to work together or use outside sources on assignments. If you have questions about the Honor Principle, please contact your department/program chair or your associate dean.

Disabilities: I strongly encourage students with disabilities, including invisible disabilities like chronic diseases, learning disabilities, and psychiatric disabilities to discuss with me (after class or at a time arranged with me) appropriate accommodations that will be helpful to them.

Religious Observances

Students may wish to participate in religious observances during the academic term. We recommend and ask that you include this language on your syllabi and course Canvas sites:

Dartmouth has a deep commitment to support students' religious observances and diverse faith practices. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me as soon as possible—before the end of the second week of the term at the latest—to discuss appropriate course adjustments.

To assist with calendar planning and awareness of our diverse religious and spiritual community, please refer to the Tucker Center for Spiritual and Ethical Life's [holy day calendar](#). The list represents major holy days which may impact campus events in general, as well as student course attendance, exams, Commencement, and participation in activities in the coming year. If you have any questions about these dates or other concerns, please contact Rev. Nancy Vogele, chaplain and director of the Tucker Center.

Student Accessibility Services

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#); student.accessibility.services@dartmouth.edu; 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation

of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.