

SYLLABUS, Recent Biodiversity Theory, spring 2025

ZOO6927, 4222 (28855)

Instructor: Robert D. Holt, 111 Bartram Hall, 392-6917, rdholt@ufl.edu

Lab manager: Mrs. Vitrell Sherif, vitrell@ufl.edu

Office Hours: By appointment through Mrs. Sherif

Credits: 1 hour, weekly

Prerequisites: Background in ecology and evolution, and ideally, experience with mathematical and computational biology. Instructor's permission.

Meeting time and place: To be arranged. There will be an organizational meeting, week of January 16, to facilitate attendance by interested students. The exact flow of topics through the semester will be determined at that first meeting.

Goal of course: To explore recent advances in biodiversity theory, using an important monograph, and readings from the recent primary literature.

Required readings:

Goal of course. We will work through the recent monograph, *Evolutionary Community Ecology* by Mark McPeck (Princeton University Press, 2017). The book is available both in hard copy, and as an e-book. We also will read each week offerings from the current literature, related to the topics in that book.

*Evolutionary Community Ecology* and the other readings we will explore provide a perspective on communities, emphasizing how their structure unfolds from the interplay of interspecific interactions, and evolution by natural selection in response to those interactions. These processes can all be modulated by movement among different locales, so there is an unfolding of community structure that reflects processes in regional metacommunities, shading into biogeographic scales.

The course will consider key concepts at the heart of biodiversity theory, including invasibility, extinction dynamics, resilience and stability, complex interaction networks, and the eco-evolutionary dynamics of diversification within and across trophic levels. Current biodiversity theory involves both an understanding of ecological dynamics, and evolutionary processes, and our seminar will aim on the rich diversity of phenomena and processes at this interface. The course will also touch on how insights in basic ecology (infused with evolution) might be used to inform understanding issues in applied ecology, such as invasion biology, infectious disease ecology, and global change research.

Expectations: In addition to regular attendance (see below), each student will be expected to lead class discussions about papers selected from the primary literature.

Grades: Grades will be assigned per UF policy (see <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> for full details).

Your final grade will be determined on the basis of the following: a) Participation 70%, b) literature presentation and discussion 30%,

Class attendance and etiquette policy. You are expected to come to class and participate in each class period, and to have read and digested the assigned reading material. All absences require a valid

reason, and without such a reason, points will be deducted from your class grade. You will be responsible for any material missed in class, and to make up for your absence, you will need to write short essays demonstrating that you have covered the reading assignments so missed. Likewise, points will be deducted from your grade for turning in assignments late. Our policy is to deduct 10% from the grade, per late day, for late assignments.

We expect that in class you will be paying close attention and really engage with lectures and discussions. This means that you should not be checking your email, surfing the web, or otherwise electronically (dis)engaged. Keep cellphones turned off. Please.

Disabilities accommodation: Students requesting classroom accommodation need to register first with the Dean of Students Office. The Dean of Students Office will then provide documentation to the study, who must then provide this documentation to the course instructor, when requesting accommodation.