

BIOL-5010 ECOLOGICAL AND EVOLUTIONARY PARASITOLOGY

This seminar will cover concepts in ecological and evolutionary parasitology. The ecology and evolution of parasitism (aka host-parasite interactions) has roots that go back about a century. However, it did not begin to emerge as a discipline until the past 40 years and based on the works of John Holmes, Peter Price, Claude Combes, Gerry Esch, John Janovy and their students among others. However, and in the broadest sense, over the last 20 years, few areas of wildlife biology have experienced such an enormous increase in scientific interest as host–parasite interactions. This surge in research has flooded the literature with papers on these interactions and their influence on studies in behavioral ecology, genetics, population biology, eco-immunology, and molecular biology among others.

We will spend the first portion of the semester covering basic concepts about parasite host specificity, life cycles, ecology and evolution of parasites. I will give an introductory lecture on the topic at hand during our first few meetings and we will continue the discussions with student-led discussions based on readings in Combes (2005) and other relevant papers from the primary literature I will provide during following weeks. Finally, I will ask each of you to present a short 30-minute lecture/discussion on a specific topic dealing with ecological and evolutionary parasitology. I will provide some potential topics at the end of this syllabus for you to choose from or you can choose your own topic of interest but please check with me first if the topic is appropriate.

Text: Claude Combes. 2005 The Art of Being a Parasite. The University of Chicago Press, Chicago and London.

Instructor: Dr. Matthew G. Bolek, 415 Life Sciences West, 744-9675
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Office hours: By appointment
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West Website: In the past I have used my personal website (www.matthewbolek.com; under teaching, and Ecology and Evolution of Parasitism) for this course. However, due to the pandemic and since we will be meeting on zoom every week, we will use my website and if we need to record any zoom lectures we will post those on Canvas.

Attendance: You are expected to attend class and are responsible for assigned readings and all material presented in lecture.

Academic Integrity: see OSU Syllabus attachment

Special Needs: If you have a disability and need special accommodations of any nature, I will work with you and the Office of Disabled Student Services to provide reasonable accommodations to ensure that you have a fair opportunity to perform successfully in this class. Please let me know about your accommodations by the end of the second week of class.

(1) What is host tolerance, and how can we define and measure it? (2) How do we define and measure virulence? (3) What is host switching, and what type of evidence would you need? (4) Parasite conservation, is it necessary? (5) Ecological fitting, how common is it? (6) From a parasite perspective, what is the most dangerous part in a typical parasite life cycle? (7) Is host parasite phylogenetic congruence common? Why or why not? (8) How do we define host specificity, and what is the evidence for most parasite species?

Grading policy/scale: Grades will be determined based on the following percentages based on point accumulated in the course.

Letter	Grade Percentage Needed
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

Graduate Calculations

Participation.....	140 points
Presentation	<u>160</u>
Total	300