

PCB 6426, Population Biology

Objectives: This is a course in *population ecology*. We'll have very little to do with population genetics. Mostly, we will examine intra- and inter-specific interactions, and critically evaluate the methods used for their description. Class discussions of readings from the historical and current literature accompany all topics. "Volunteers" from the class lead these discussions. A poster presentation and a written review paper are required. The poster presentation is a synopsis of the literature on one of the subjects listed below, and the written review paper is a detailed and extended version of the poster presentation. Both the poster presentation and the written review paper should: (1) focus clearly on populations; (2) discuss the most important aspect(s) of the subject; (3) relate the subject to other parts of population biology; (4) refer back, as much as possible, to class discussions; (5) provide any necessary background information; and (6) define the current state of understanding of the subject.

Typical Subjects for Poster Presentation and Written Review Paper:

Classical Problems

1. Optimization
2. Stability
3. Population Cycles
4. Habitat Selection
5. Habitat Use

Applications

6. Harvesting
7. Pest Control
8. Disease Control
9. Conservation
10. Biological Invasions

Mathematical Effects

11. Spatial Effects
12. Temporal Effects
13. Stochastic Effects
14. Behavioral Effects
15. Evolutionary Effects

General Outline:

Weeks 1-3	Population Size
Weeks 4-6	Population Growth
Week 7-9	Population Regulation
Week 10-11	Predation
Week 11-12	Predation
Week 12 -13	Parasitism
Week 13-14	Competition
Week 14	Life Histories
Week 15	Up-Scaling