

Statistical Ecology, PCB 6455

Objectives: This course is designed to be an introduction to many of the statistical analyses regularly performed by ecologists. The objectives of the course are that you gain reasonable familiarity with these analyses and that you develop reasonable skill in dealing with encountered ecological data. Course content mostly will consist of class lectures and readings from the textbook. Occasionally, we may also use selected original literature. The class size is small and the course is meant to be interactive. An annotated bibliography, on one of the topics listed below, is required.

Typical Topics for Annotated Bibliography:

1. Illustrating the importance of graphing
2. Using non-parametric statistics
3. Using maximum likelihood and Bayesian statistics
4. Using jackknifing and bootstrapping
5. Using randomization
6. Using multivariate techniques
7. Using classification techniques
8. Using ordination techniques
9. Estimating dispersion
10. Estimating species richness
11. Estimating species diversity
12. Estimating relative abundance and evenness
13. Estimating dietary preference
14. Estimating community similarity
15. Using meta-analysis

General Outline:

Week 1	Philosophical approaches to data analysis
Week 2	A review of some relevant statistical techniques
Week 3-4	Analyzing the distribution of organisms in space
Week 5	Field Exercise
Week 6	Analyzing the relative abundances of organisms
Week 7	Diversity and diversity indices
Week 8	Analyzing the association between organisms
Week 9	Niche indices
Week 10	Foraging indices
Week 11	Putting things in groups
Week 12-13	Putting things on gradients
Week 14	Field Exercise
Week 15	Analyzing the association of organisms with environment