



Principles of Ecology

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The syllabus is intended to be a guide and it may require changes

This course concentrates on the interactions between plants and their environments over different scales. We will review plant patterns and function in nature. We will evaluate the rich theoretical basis of plant ecology and benefit from regional natural history knowledge. This course has a large field component and students will participate in vegetation sampling, field observations and field and greenhouse experiments. Students are expected to develop short individual research projects on plant-animal interactions and biomes.

Objectives:

- To revise fundamental ecological concepts,
- To motivate critical thinking through participation in the design and evaluation of laboratory, greenhouse and field exercises and discussion of readings.
- To expose the students to critical literature and current contributions related to ecological concepts.
- To develop elementary logical and analytical abilities

Goals:

- To provide the students with an understanding of basic principles in Ecology as they are relevant for their regular life and future work.
- To complete four laboratory and field exercises as an opportunity to improve written and communication skills.

Textbook:

Gurevitch J., S. Scheiner, & G. Fox. 2006. The Ecology of Plants. Sinauer

Detailed schedule - Attendance to laboratory and field exercises is mandatory:

Session	Topic	Evaluations/Labs
I	Introduction	
	What is plant ecology?	Arboretum visit
	Discussion	
II	Photosynthesis and the light environment	
	Energy balance	I. Greenhouse experiment
	Discussion	
III	Soils and mineral nutrition	I. Greenhouse experiment
	Water relations	
	Discussion	
IV	Population structure, growth, and decline	II. Field exercise 1
	Discussion	Archbold
V	Reproduction	Exam 1 – hand out
	Seed dispersal and predation	
	Discussion	I. Greenhouse – Data collection
VI	Interactions – competition, facilitation,	EXAM 1 - DUE
	Herbivory, pathoges	
	Discussion	II. Demography Lab
VII	Disturbance and succession	
	Discussion	Project discussions and feedback
VIII	Local abundance, diversity, and rarity	REPORT DUE (Demography)
	Ecosystem processes	I. Greenhouse – Final data
		collection
IX	Communities and Landscapes	III. Design Ecotone experiment
	Discussion	Project discussion and feedback
	Spring Break	
X	Landscape Ecology	REPORT DUE (Greenhouse)
	Discussion	III. Ecotone Field Trip
XI	Biomes	
	Discussion	III. Ecotone experiment - Analysis
XII	Climate and Physiognomy	REPORT DUE (Ecotone)
	Discussion	Project Presentations – Day 1
XIII	Global change and global diversity	
	Discussion	Project Presentations – Day 2
	EXAM 2	Exam 2 – hand out
XIV	Class conclusion – future projects	EXAM 2 - DUE

Student duties:

Conduct: Students must follow the University standards for personal and academic conduct as outlined in the Golden Rule (<http://www.goldenrule.sdes.ucf.edu/>). Please use courtesy: arrive on time, not leave early, no talk, no cell phones and beepers.

Readings – In addition to the corresponding book chapter, two readings will be assigned per week.

Evaluations Overall:

1. Two exams after major sections. These exams will consist of essay-type questions based on the corresponding book chapters and additional reading assignments. Each exam is take-home and due the week following its release. Each exam contributes with 20 points (= 40 total points).
2. Three field and greenhouse exercises that will be reported. The reports must include (1) a brief (one paragraphs) introduction (with literature cited), (2) statement of objectives, (3) detailed methods, (4) results with tables and graphs, and (5) discussion. The total extent of this reports should not exceed five pages. Lab report 1 (based on Greenhouse experiment) is worth 20 points while each of the field experiment reports contributes 10 points each (=40 total points).
3. An independent project assessing the interaction of a plant with another organism(s) and biome's diversity. This work must involve a minimum of 20 hours of work. We will discuss these projects through the semester. Progress will be evaluated with data sheet forms. Final presentations are due two weeks before the end of the class. Students will make short (15 minute) presentations of their work. The project contributes 20 points.

Grade scale: A = 90-100; B = 80-89; C = 70-79; D = 60-69; F= below 60.

Office hours to be defined

Additional General readings

Crawley, M.J. 1997. Plant Ecology. Blackwell

Etherington, J.R. 1975. Environment and Plant Ecology. Wiley.

Harper, J. L. 1977. Population Biology of Plants. Academic Press.

Larcher, W. Physiological Plant Ecology. Springer.