

BIOLOGY 535 – PLANT ECOLOGY

COURSE INFORMATION

Instructors:	Dr. David Lipson, PhD <i>Professor of Biology</i>	Ms. Spring Strahm, MS <i>Instructor</i>
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Office Hours:	T 3:30-4:30 Or by appointment	T 1:00-1:50 Th 1:00-1:50
Course Description	Plant adaptation and response to living and non-living environment including aspects of plant evolution, demography, ecophysiology community and ecosystem dynamics and soil-plant relationships. Terrestrial systems emphasized.	
Meeting Time/Place	<i>4 units: 3 hours lecture, 3 hours lab</i>	
	Lecture	2:00-3:15 T, Th GMCS-306
	Lab	3:30 -6:10 Th LS-235
Prerequisites:	Biology 203, 203L, 204, 204L. <i>Strongly recommended:</i> Biology 215, 354.	
Textbook	Gurevitch, Scheiner and Fox. The Ecology of Plants, 2nd edition. Published in 2006 by Sinauer Associates, Inc.	

COURSE GOALS AND LEARNING OBJECTIVES

This course is an introduction to plant ecology. We will be studying the role of plants communities in the structure and function of the ecosystem across a fragmented landscape. Through the lectures, readings, assignments, group presentations, field trips, and computer labs you will gain a broader understanding of the key concepts in plant ecology and get experience in applying these concepts by collecting, analyzing, and interpreting data from several local plant communities.

At the end of the course students will be able to:

- Understand the key principles of plants' interactions with abiotic and biotic components of ecosystems
- Observe natural systems and take detailed field notes about plants within their habitats
- Plan and execute a survey of a vegetation community
- Learn, use, and apply statistical software to enter data, graph and analyze data, test hypotheses, and interpret results from data collected in the field.
- Read, evaluate and communicate scientific information (data and research papers) in a critical manner

Over the course of the semester, students will learn:

- Major concepts in modern plant ecology from the response of individual plants to their local environment to the role of plants in ecosystems and the global climate system
- How to search for, select, read, and synthesize information from the primary literature in plant ecology
- How to design, carryout, and analyze data from studies of plant communities
- How to present and evaluate scientific findings

GRADING

Lecture:	300 points
3 Midterms exams and a cumulative final (100 pts each). Lowest exam will be dropped (no make-up exams will be given)	

Lab:	100 points
Group Project (Presentation):	35
Participation:	
SMER 2-day field trip	20
Mountains or Desert 1-day field trip	10
On-Campus Labs	10
Lab Notebook:	
Responding to field trip scheduling survey Due 1-28-15 before 11:59 PM	5
Lab notebook check 1 (Green House Set-up)	5
Lab notebook check 2 (SMER)	5
Lab notebook check 3 (Soil Processing)	5
Lab notebook check 4 (Final Field Trip)	5

Required Field trips

The lab includes one overnight field trip and a choice between two one-day field trips. These field trips provide valuable hands-on experience in field ecology, and are generally considered to be the most rewarding aspect of the class. If you are absolutely unable to attend one or more of these field trips, some alternative activity can be arranged (but it will probably be less exciting).

Because these field trips extend beyond regular class hours, to compensate for this extra class time some regularly scheduled lab classes will be cancelled. See schedule for details.

Waiver language

Field Trip Scheduling Survey:

Due 1-28-15 before 11:59 PM

Follow this link, and check off all dates on offer that are currently available to you. Be sure to scroll to the right, as some dates will be obscured by the edge of the window.

<http://doodle.com/25dd7dyk28nfd473>

		Reading*		Instructor	Topic	Lab
01/22/2015	Th	2:00	3:15	Lipson/Strahm	Course Intro	
01/27/2015	T	2:00	3:15	Ch 2 Lipson	Photosynthesis	
01/29/2015	Th	2:00	6:15	Ch 2 Lipson	Photosynthesis	Lab: Greenhouse Experiment
02/03/2015	T	2:00	3:15	Ch 3 Lipson	Light, Heat, Water (Drop Deadline)	
02/05/2015	Th	2:00	6:15	Ch 3 Lipson	Light, Heat, Water	
02/10/2015	T	2:00	3:15	Ch 4 Lipson	Soils, nutrients, microbes	
02/12/2015	Th	2:00	6:15	Ch 4 Lipson	Soils, nutrients, microbes	
02/17/2015	T	2:00	3:15	Ch 11 Lipson	Herbivory, disease and defense	
02/19/2015	Th	2:00	6:15		Midterm	
02/24/2015	T	2:00	3:15	Ch 8 Strahm	Plant Life Histories	
02/26/2015	Th	2:00	6:15		Desert adaptations, vegetation communities, habitat	
03/03/2015	T	2:00	3:15	Ch 7 Strahm	Reproduction	
03/05/2015	Th	2:00	6:15	Ch 5 Strahm	Demography / Demography of long lived plants	MTRP-- Field Trip After Class
03/10/2015	T	2:00	3:15		Coastal Plant Adaptations	
03/12/2015	Th	2:00	6:15	Ch 9, 10 Lipson	Community Properties	TBA-- Coastal Field Trip After Class
03/17/2015	T	2:00	3:15	Ch 10 Lipson	Community interactions	
03/19/2015	Th	2:00	6:15	Reading* Strahm	soCal plant communities	Lab techniques and sample processing
03/21/2015	Sat	9:00	5:00		Strahm	SMER Field Trip
03/22/2015	Sun	9:00	5:00		Strahm	SMER Field Trip
03/24/2015	T	2:00	3:15		Strahm	TBA
03/26/2015	Th	2:00	6:15			Midterm
03/31/2015	T	2:00	3:15			Spring Break
04/02/2015	Th	2:00	6:15			
04/07/2015	T	2:00	3:15	Ch 17,18 Lipson	Global patterns of plant ecosystems	
04/09/2015	Th	2:00	6:15	Ch 19 Lipson	Biodiversity	Lab Work
04/14/2015	T	2:00	3:15	Ch 12 Strahm	Disturbance and Sucession	
04/16/2015	Th	2:00	6:15	TBA Strahm	TBA	Data Analysis / Lab Work
04/21/2015	T	2:00	3:15	Ch 13 Strahm	Rare V. Invasive Species	
04/23/2015	Th	2:00	6:15	Ch 14 Lipson	Global Biogeochemical Cycles	Data Analysis
04/28/2015	T	2:00	3:15	Ch 14 Lipson	Global Biogeochemical Cycles	
04/30/2015	Th	2:00	6:15	Ch 21 Lipson	Climate change: impacts on plants	Final Presentations
05/05/2015	T	2:00	3:15	Ch 21 Lipson	Climate change: feedbacks from plants	
05/07/2015	Th	2:00	6:15			Midterm
05/12/2015	T	1-3 PM				Final [note special time]

*- supplemental readings will be posted on BB