

## **PLANT ECOLOGY SYLLABUS**

### **Meeting Times**

*Lecture:* 9:15 – 10:35am Monday & Thursday, Bartlett Hall Rm 123

*Labs:* 1:00 – 5:00 pm, Monday, Tuesday, Wednesday, or Thursday

**Professor:** Dr. Myla Aronson

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Office: Before September 29: 108 Plant Physiology Bldg, 1 College Farm Road, Cook Campus

After September 29: 105 Blake Hall, 93 Lipman Drive, Cook Campus

**Lab/Field Instructors:** Bethanne Bruninga-Socular  
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### **Office hours**

Dr. Aronson: Thursdays, 10:45-12:00

Teaching Assistants: By arrangement.

### **COURSE DESCRIPTION**

Ecology is the study of interrelationships between organisms and their biotic and abiotic environments. As a basic science, ecology informs us about the processes governing the patterns we observe in nature. From an applied perspective, it is critical that we understand ecology as it provides insights and solutions to many of the environmental issues we are confronted with in our daily lives. In this course we will focus specifically on the ecology of plants. Plant ecology is the study of the distribution and abundance of plants and their interactions with the abiotic environment and other organisms. In this course, we will examine plant life histories, populations, communities, and plant-animal interactions (pollination, dispersal, herbivory). Labs includes greenhouse, field experiments, and field trips with an exploration of plant biodiversity of the campus and region. Terrestrial systems emphasized.

### **COURSE LEARNING GOALS**

This course is an introduction to plant ecology. 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.

- Students will learn and express an understanding of how evolution and factors such as resources, animal interactions, and competition affect plant life histories, numbers, distribution, and community dynamics, and how humans and plants interact.
- Given a New Jersey habitat, students will be able to predict likely plant communities and the major plant species.
- Students will develop a comprehensive understanding of common field techniques to study plant communities.
- Students will develop a comprehensive understanding of techniques to analyze and visualize plant population and community data.
- Students will learn to effectively communicate scientific findings by write portions of scientific papers based on field and greenhouse experiments.

How you reach the learning goals in class will be assessed through the evaluation and grading of:

- In-class activities
- Lecture quizzes
- Three lecture exams
- Lab quizzes
- Lab assignments and reports

## COURSE MATERIALS

### Required Texts:

- Gurevitch, J, SM Scheiner and GA Fox. 2006. *The Ecology of Plants*, 2<sup>nd</sup> edition. Sinauer Associates, Sunderland, MA.
- Plant Ecology Lab/Field Manual (on Sakai).
- Collins, BR and KH Anderson. 1994. *Plant Communities of New Jersey*. Rutgers University Press, New Brunswick, NJ. (referred to as “CA” in the syllabus).

### Recommended Texts:

- Newcomb, L. 1989. *Newcomb's Wildflower Guide*. Little, Brown and Company, Boston, MA.
- Sibley, DA. 2009. *The Sibley Guide to Trees*. Knopf Doubleday, NY.
- Montgomery, JD, and DE Fairbrothers. 1992. *New Jersey ferns and fern-allies*. Rutgers University Press New Brunswick.
- Knisely, K. 2009. *A Student Handbook for Writing in Biology*, 3<sup>rd</sup> edition. Sinauer, Sunderland, MA.

*All required and recommended texts are on reserve at Chang Library.*

## COURSE POLICIES

### Attendance

Lecture and lab attendance is mandatory. There are NO MAKE-UP LABS so don't miss your lab periods! If an emergency arises, contact your TA immediately! It is urgent that you are ON-TIME for field trips; vans must leave **promptly** at 1pm. If you are late, you will miss the van and you will not be given an opportunity to make up the lab. To qualify for special consideration, all excuses must be submitted by email to Dr. Aronson with supporting documentation (i.e. medical note, army drill notice, etc). Excuses submitted 'before' the event are given more weight. Whether or not special consideration is given is entirely at the discretion of Dr. Aronson. *Excuses without supporting documentation will not be granted. Do not email asking for special consideration without including supporting documentation.*

### Assessment

- Lecture (50% of final grade)

- Three exams will cover material from lecture, lab, and readings (10% each, total of 30% of final grade). Approximately 25% of the 2<sup>nd</sup> and 3<sup>rd</sup> exams will be cumulative.
- Online lecture quizzes (10% of final grade)
- Lecture assignments and participation in-class (10% of final grade).
- Lab (50% of final grade)
  - Assignments (40% of final grade)
  - Quizzes (10% of final grade)
    - 3 lab quizzes on plant identification
    - 3 online plant identification assignments

**Late Assignment Policy:** There is no late work accepted for lecture quizzes and assignments. For lab assignments, if not handed in at the beginning of the lab the assignment is due in, 10% will be deducted for each day the assignment is late. If still late after 3 days, the assignment will not be graded and you will receive a zero for that assignment.

No extra credit will be awarded, but students are encouraged to submit work early for initial comments. To be fair, I ask that any requests for a grade change must be in writing.

For assignments and lab reports, points will be taken off for misspellings, wrongly formatted text, sloppiness, not adhering to given formatting guidelines, and similar mistakes. There will be no curving of grades. We will use the gradebook on Sakai so you can check your current grade at all times. If you feel like you are falling behind, come and talk to us about ways to improve your performance. We are here to help you learn!

Assessment Scale:

- A: 90-99 %
- B+: 85-89 %
- B: 80-84 %
- C+: 75-79 %
- C: 70-74 %
- D: 60-69 %
- F: < 60%

### **Academic Conduct and Integrity**

***All instances of plagiarism or other unacceptable and unethical academic conduct will be reported to the Office of Student Conduct might result in warnings or suspension according to Rutgers official rules.***

All students are expected to follow University policies on academic integrity:

<http://academicintegrity.rutgers.edu/> .

***Write everything by yourself, in your own words, and never copy text from the internet or publications*** – we are using turnitin.com to check all text handed in by students. Please remember to cite all sources for information (see lab manual). Reference lists have to include all authors and full title of each paper.

Each student has the responsibility: (1) to uphold the highest standards of academic integrity in the student's own work; (2) to refuse to tolerate violations of academic integrity in the university community; and (3) to foster a high sense of integrity and social responsibility on the part of the university community.

**Cheating and Plagiarism: Plagiarism** is defined as the use of any information, published or unpublished, without acknowledgement of the source. **Cheating** is a special form of plagiarism that occurs when you use the work of another student in place of your own. Violations are always reported to the Dean's Office, under University rules. It is extremely important that you distinguish your own ideas from those of others. Your sources must always be acknowledged. If you have any questions about this, please see the instructors.

### **Notice for Students with Disabilities**

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

### **How will you succeed in this course?**

- Attend all lectures and labs.
- Take notes on paper, not on your computer (there have been studies to show that students retain more knowledge when hand-writing their notes)
- Complete and review all readings *before* the lecture or lab for which they are assigned.
- Meet all deadlines
- Give yourself plenty of time to review the readings and notes before each exam.
- Take advantage of office hours.

***This syllabus and schedule is a guide for the course and is subject to change. We will email you by Sakai if any changes occur.***

**LECTURE SCHEDULE**

Subject to revisions. All readings for lecture unless otherwise stated are from Gurevitch et al. (2006). Readings may be added throughout the semester.

<b>Date</b>	<b>Topics</b>	<b>Readings</b>	
September	8	Introduction to the Course	
	12	The Science of Plant Ecology	Chapter 1, Appendix
	15	Global Patterns of Vegetation	Chapters 18-19
	19	How to Identify Plants	Chapter 8, TBA
	22	Crossroads Symposium	
	26	Plant Biology I	Chapters 3-5 Chapter 7, pages 155-158
	29	Plant Biology II	Chapters 3-5 Chapter 7, pages 155-158
October	3	Community Properties I	Chapters 9 and 13
	6	Community Properties II	Chapters 9 and 13
	10	Succession and Disturbance	Chapter 12
	13	EXAM 1	
	17	Competition I	Chapter 10, TBA
	20	Competition II	Chapter 10
	24	Herbivory I	Chapter 11, TBA
	27	Herbivory II	Chapter 11
November	31	Plant evolution and adaptation	Chapter 6
	3	Plant evolution and adaptation	Chapter 6
	7	Plant Reproduction	Chapters 7-8
	10	Pollination Ecology	Chapter 7, TBA
	14	Seed ecology and dispersal	Chapters 7-8
	17	Recruitment limitation (Max)	TBA
	21	Restoration ecology	SER primer (Sakai)
	22	Design with plant communities	TBA
December	28	EXAM 2	
	1	Invasive species	TBA
	5	Population structure and dynamics	Chapter 5
	8	Population structure and dynamics	Chapter 5
	12	Urban Plant Ecology	TBA
	19	FINAL EXAM 8:00am-11:00am Bartlett 123	

### LABORATORY SCHEDULE

All labs begin **promptly** at 1:00 pm. We go out to the field RAIN or SHINE!  
 You must be on time or you will be left behind! Meet where specified in the schedule below.  
 Always bring a print-out of the lab, a notebook, and a writing utensil! Most labs are outdoors:  
**dress appropriately** for the weather, poison ivy, and ticks. You must wear long pants and close-toed shoes. You will not be able to attend the lab without appropriate clothing and you will not be given a chance to make-up the lab should you show up inappropriately dressed.

All readings are from Collins and Anderson (1994), unless otherwise stated. Readings may be added throughout the semester.

Week of	Topic	Location	Readings	Assignments
Sept 12	Plant Competition	Floriculture Greenhouses	Chapters 1-2	Data Sheets started
Sept 19	Ecological Succession, Forest Ecology	Hutcheson Memorial Forest, Somerset, NJ (meet in front of ENR)	Chapter 7	Start Instagram Assignment
Sept 26	Plant-Insect Interactions	Heylar Woods Meadow (meet at the entrance to Heylar Woods)		Check on Plant Competition experiment
Oct 3	Forest Ecology I	Hutcheson Memorial Forest (meet in front of ENR)		Plant-Insect Interactions assignment Due
Oct 10	Forest Ecology II	Campus Woods (meet in front of ENR)		
Oct 17	Forest Ecology III: Data Analysis	TBA		Check on Plant Competition experiment
Oct 24	Pinelands Ecosystems	New Jersey Pinelands (meet in front of ENR) <i>Late Return!</i>	Chapters 9-10	Forest Ecology assignment due
Oct 31	Coastal Ecosystems	Sandy Hook National Seashore (meet in front of ENR) <i>Late Return!</i>	Chapters 12-13	Late Return!
Nov 7	Greenhouse and Herbarium tour	Floriculture Greenhouses and Chrysler Herbarium (Meet at entrance to greenhouses)		Check on Plant Competition experiment
Nov 14	Climate Change or Rain Date	TBA	Chapter 3	Meet a tropical plant assignment due.

				Instagram Assignment due November 13, 11:59 pm
Nov 21	NO LABS			Comment on a tropical plant due.
Nov 28	Plant Competition: Harvest	Floriculture Greenhouses		
Dec 5	Plant Competition: Data analysis	TBA		
Dec 12	NO LABS			Plant Competition assignment due.