

# PLANT ECOLOGY 11:704:332 Fall 2009

Lecture: 9:15 – 10:35am Monday & Thursday

Lab: 1:00 – 5:00pm Monday, Tuesday, Wednesday, Thursday

## GENERAL INFORMATION

**COURSE DESCRIPTION:** Study of plant life histories, populations, communities, plant-animal interactions (pollination, dispersal, herbivory), and evolutionary basis for plant ecological traits. Labs include fieldtrips to representative habitats in the state and field experiments.

### COURSE OBJECTIVES:

- Students will express understanding of how evolution and factors such as resources and competition affect plant distribution and community dynamics, and how humans impact plants and ecosystems.
- Given a New Jersey habitat, students will be able to predict likely plant inhabitants.

### COURSE MATERIALS:

#### Required:

- Gurevitch, J, SM Scheiner and GA Fox. 2006. *The Ecology of Plants*, 2<sup>nd</sup> ed. Sinauer Associates, Sunderland, MA. (referred to as GSF in syllabus)
- Plant Ecology Lab/Field Manual (\$5 at ENR Bldg, Room 152, please pay with exact change)

#### Optional:

- Collins, BR and KH Anderson. 1994. *Plant Communities of New Jersey*. Rutgers University Press, New Brunswick, NJ. (referred to as CA in syllabus)
- Clemants, S and C Gracie. 2006. *Wildflowers in the Field and Forest*. Oxford University Press, NY, NY.

### COURSE POLICIES:

**Attendance:** Lecture and lab attendance will be taken into account in final grade. Prior arrangement must be made for absence from an exam. You are allowed a maximum of 3 absences from lecture approved in advance, if possible. Allowed absences include observance of religious holiday, illness, family emergency, or court date. There are NO MAKE-UP LABS so you may not miss lab. If an emergency arises, contact your TA immediately!!!!

#### **Grading:**

- 3 exams, 100 points each: will cover material from lecture, lab, and reading
- Attendance Assignments in-class or on-your-own (approximately 5% of total grade)
- 2 in-class presentations, 5 points each
- 1 worksheet on films, 10 points
- 1 journal assignment, 10 points
- 2 lab reports, 50 points each: Hutcheson Memorial Forest, Duke Farms
- 6 lab quizzes, 10 points each: plant identification

**Late Assignment Policy:** 10% will be deducted for each day an assignment is late.

### ACADEMIC HONOR CODE:

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. Neither will be tolerated. 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 instructor.

**AMERICANS WITH DISABILITIES ACT:** Students with disabilities needing academic accommodation should contact the New Brunswick Contact the Office of Disability Services at 732-932-2848 or dsoffice@rci.rutgers.edu to determine your Coordinator for Students with Disabilities.

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

Lecture Instructor: Dr. Kristen Ross e: kaross@rci.rutgers.edu ph: 732-932-4275  
Lab/Field Instructors: Ms. Elena Tartaglia e: etartag@rci.rutgers.edu ph: 732-932-4520  
Ms. Maria Stanko e: mstanko@rci.rutgers.edu ph: 732-932-3209

Office hours for Dr. Ross: Mondays 10:45-12:00 or by appointment in the Plant Physiology Building Room 108 (CURE offices), 1 College Farm Road, Cook Campus.

Office hours with the Teaching Assistants are by arrangement.

## COURSE CONTENT AND OUTLINE:

### LECTURE SCHEDULE

<u>Day of</u>	<u>Lecture Topic</u>	<u>Readings</u>
September		
3	Introduction to Plant Ecology	<b>Ch 1</b> (all) in Gurevitch, Scheiner, & Fox ( <b>GSF</b> ), <b>other readings</b> (see Sakai)
8(Tuesday)	Relevance of Plant Ecology	<b>GSF Ch 1</b> (all), <b>other readings</b>
10	Life Histories & Plant Communities (part 1)	<b>GSF Ch 8</b> (pgs.185-193 stop at Demographic Life History Theory, pgs.198-202 start at Phenology) <b>GSF Ch 9</b> (pgs.205-206 stop at History of a Controversy, 207 Box 9A, 210-223) <b>GSF Ch 16</b> (pgs.369-373 stop at Defining Patches, 375-379 start with Scale)
14	Plant Communities (part 2) & Competition	<b>GSF Ch 10</b> (pgs.225-233 stop at Experimental Methods, 237-244 stop at Modeling Competition)
17	Succession	<b>GSF Ch 10</b> (pgs.233-237 start at Experimental Methods) <b>GSF Ch 12</b> (pgs.283-300 stop at Predictability of Succession, 302-304 start at Primary Succession)
21	Competition & Disturbance	<b>GSF Ch 10</b> (pgs.248-256 start at Effects of Competition on Coexistence) <b>GSF Ch 11</b> (pgs.257-267)
24	Abundance & Rarity/Invasion Biology	<b>GSF Ch 11</b> (pgs.274-281) <b>GSF Ch 13</b> (all), <b>other readings</b> (see Sakai)
28	Adaptations & Review	<b>GSF Ch 2</b> (36-41 start at Adaptations to the Light Environment) <b>GSF Ch 11</b> (pgs.267-273 start at Plant Defenses)
October		
1	EXAM 1	
5	Plant Evolution and Adaptation	<b>GSF Ch 6</b> (all) Guest Lecturer
8	Population Dynamics (part 1)	<b>GSF Ch 5</b> (all)
12	Population Dynamics (part 2) & Statistics Review	<b>GSF Ch 5</b> (all)
15	Individuals & their Environment	<b>GSF Ch 2</b> (pgs.17-36)
19	Reproduction & Clonal Biology	<b>GSF Ch 7</b> (pgs.155-163 stop at Pollination Ecology)
22	Mutualisms & Soils	<b>GSF Ch 4</b> (all) Guest Lecturer
26	Catch up & Review	
29	EXAM 2	
November		
2	Pollination Ecology	<b>GSF Ch 7</b> pgs.163-179 (stop at The Ecology of Fruits and Seeds) Guest Lecturer

<u>Day of</u>	<u>Lecture Topic</u>	<u>Readings</u>
November		
5	Seeds and Dispersal	<b>GSF Ch 7</b> (pgs.179-184 start at Ecology of Fruits and Seeds) Guest Lecturer
9	Urban Plant Ecology	<b>Articles</b> (see Sakai)
12	Restoration Ecology	<b>Articles</b> (see Sakai)
16	Ecosystem Processes (part 1)	<b>GSF Ch 14</b>
19	Ecosystem Processes (part 2)	<b>GSF Ch 14</b>
23	Conservation & Human Impacts	<b>GSF Ch 16</b> (pgs.384-387) <b>GSF Ch 21</b> (all)
26	No Lecture -- Happy Thanksgiving	
30	Plants & Ecosystem Services	<b>other readings</b> (see Sakai)
December		
3	Biomes & Climate Change	<b>GSF Ch 17</b> (pgs.411-415 start at Plant Physiognomy) <b>GSF Ch 18</b> (all) <b>GSF Ch 21</b> (all)
7	Catch up and Review	
10	EXAM 3 (Final 9:15-10:35AM CDL room 102)	

### ***LABORATORY SCHEDULE***

All labs begin promptly at 1:00pm. We go out RAIN or SHINE! You must be on time or you will be left behind!!!  
Always bring your Plant Ecology Lab/Field Manual, paper, and something to write with to lab sections!  
You will meet in a classroom inside of ENR Bldg for all indoor labs. Your TA will notify you where to go.

#### ASSIGNMENTS (total 130 points):

- \*\*6 quizzes throughout semester on plant ID and plant communities you visit worth total of 60 points
- \*\*Plant ID Presentation **due week of October 12** worth 5 points
- \*\*Hutcheson Memorial Forest lab assignment **due week of October 19** worth 50 points
- \*\*Duke Farms lab reports **due week of November 16** worth 50 points
- \*\* In-class worksheet on films **due in class week of November 16** worth 10 points
- \*\*Journal on Human Impacts on Plant Ecology **due week of November 30** worth 10 points
- \*\*Relevance of Plant Ecology presentation **due week of November 30** worth 5 points

<u>Week of</u>	<u>Lab Topic</u>	<u>Topic/Readings</u>
September		
1	NO LABS	<b>Ch 1 &amp; 2</b> in Collins & Anderson (CA)
7	NO LABS	<b>GSF Ch 10</b> pgs.233-237 (start w/ Experimental Methods for Studying Competition and stop at Interspecific Competitions to Allelopathy to Facilitation)
14	Hutcheson Memorial Forest	<b>CA Ch 7</b> old fields, forest structure <u>Plant ID presentation assignment</u>
21	Hutcheson Memorial Forest	succession, plant communities <u>lab report assignment</u>
28	Cheesequake State Park	<b>CA Ch 12</b> salt marsh structure
October		
5	Duke Farms	herbivory & invasive species <u>lab report assignment</u>
12	How to Be a Scientist (indoor lab) **Plant ID presentation due**	statistics review and lab report writing
19	Great Swamp National Wildlife Refuge **HMF lab due**	<b>CA Ch 8</b> wetland ecosystems
26	New Jersey Pinelands <i>*late return*</i>	<b>CA Ch 10</b> Pinelands ecosystems
November		
2	Sandy Hook National Park <i>*late return*</i>	<b>CA Ch 13</b> coastal ecosystems

<u>Week of</u>	<u>Lab Topic</u>	<u>Topic/Readings</u>
November		
9	Make-up Labs and Review	help with lab report writing
16	Film Festival: adaptations, pollination (indoor lab) **Duke Farms lab report due**	<u>In-class worksheet on films</u> <u>Relevance of Plant Ecology presentation assignment</u> <u>Human Impacts on Plant Ecology journal assignment</u>
23	No labs--HAPPY THANKSGIVING	
30	Human Impacts on Plant Communities (indoor lab) **Relevance of Plant Ecology presentation due** **Human Impacts on Plant Ecology journal due**	visit greenhouse/herbarium
December		
7	NO LABS	

*This syllabus is a guide for the course and is subject to change. Notice will be given if any changes occur.*