

FO 4123/6123 – FOREST ECOLOGY
Fall 2012

Instructors: Scott Roberts
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Prerequisite: FO 3012 “Introduction to Forest Communities”

Corequisite: “Forest Ecology Laboratory”

Meeting Schedule: Lecture: M W F 9:00-9:50 TH A-208
Labs W 1:00-4:50 TH 118
Th 1:00-4:50 TH A-313

Objectives:

This course will review principles of forest ecology, which include various elements of forest biology, ecophysiology, stand dynamics, genetics, and soils. Students will learn how these principles apply in silvicultural decision-making. The overall goal of the course will be for students to gain knowledge and understanding of:

1. How forest ecosystems function
2. How and why forest ecosystems change through time
3. How forest ecosystems respond to disturbance – either natural (e.g., fire, wind, insects) or human-induced (e.g., silvicultural treatment).

References:

Required Text:

Barnes, B.V., D.R. Zak, S.R. Denton, and S.M. Spurr. 1998. Forest Ecology, Fourth Edition. John Wiley & Sons, Inc. New York.

Additional References:

Kimmins, J.P. 2004. Forest Ecology: A Foundation for Sustainable Forest Management and Environmental Ethics in Forestry. 3rd ed. Pearson Prentice Hall, New Jersey.

Pallardy, S.G. 2008. Physiology of Woody Plants. 3rd ed. Elsevier, Oxford, UK.

White, T.L., W.T. Adams, and D.B. Neale. 2007. Forest Genetics. CABI Publishing, Cambridge, Massachusetts.

Daniel, T.D., J.A. Helms, and F.S. Baker. 1979. Principles of Silviculture. 2nd ed. McGraw-Hill, Inc. New York.

Other references or assigned readings will be added during the semester

Evaluation:

Students will be evaluated based upon their performance on hour examinations (3), a semester long exam, laboratory assignments, and a comprehensive final examination. In order to receive a C or better in the course, a student must attain an average of 70% or higher across the three midterm exams and the final exam.

Grades for the course will be based on:

90% or better	A
80-89.9%	B
70-79.9%	C
60-69.9%	D
59.9% or less	F

Weighting of points for the final grade will be:

Final examination	25%
Hour examinations (3)	55%
Daily exams	15%
Laboratory exercises	5%

Hour exams will cover the materials presented in the preceding section of the course. The final exam will be comprehensive and cover all materials presented in both lecture and lab. A daily exam is to be expected at the beginning of each lecture period covering the reading assignments for that week and the materials presented in previous lectures. Missed daily exams cannot be made up. At the end of the semester, the lowest 20% of the daily exam scores will be dropped. Laboratory exercises are intended to reinforce materials covered in lectures. **Failure to complete and turn in ALL laboratory exercises will result in a one letter grade reduction of the student's grade for the course.**

Graduate students will be expected to turn in an annotated bibliography of five journal articles every two weeks, starting in week three. They should arrange to meet with the professor in the first week of semester to settle on a topic and clarify the expectations of the assignment.

Attendance Policy:

Studies conducted at Mississippi State University and elsewhere have shown that a good predictor of a student's performance in class is the number of absences during the semester. Your presence at all lectures is expected. Attendance will be taken for information purposes only, although there will be no formal attendance policy. Missing class, however, will result in missed quizzes, which may adversely affect your grade. Attendance at all laboratory sessions **is required**. Each unexcused absence from a scheduled lab will result in a 5% reduction of the student's course grade.

Honor Code Policy:

Students will be expected to abide by the MSU Honor Code, which simply states:

"As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Persons found violating the honor code on exams or assignments will receive no credit for that exercise and will be reported to the University's Honor Code Council Office. The MSU policy regarding the honor code can be found online at <http://www.honorcode.msstate.edu/>. A full copy of the honor code operating procedures has been posted on the course MyCourses site.

Student Support Services:

Disability Support Services seeks to provide educational access and opportunity through support, resources, advocacy, collaboration, and academic accommodations for students with disabilities (as defined by the Americans with Disabilities Act and the Rehabilitation Act of 1973). Students wishing accommodation should contact the office of Student Support Services (<http://www.sss.msstate.edu/>) or come and see the course instructor.

myCourses:

Many of the materials for the course will be made available on myCourses. Students are expected to know how to use the myCourses system, and are responsible for regularly checking for new or updated materials. Course materials available on myCourses will include:

- The course syllabus
- Professional Expectations of Students
- Copies of the PowerPoint presentations from lectures
- Tables & figures from the lectures in a larger format
- Additional readings and study materials

Expectations of Student Behavior:

- See handout

Tips on how to do well in this class:

- Come to class ***
- Take good notes (Record lectures if you would like)
- Recopy your notes each evening
- Read the assigned readings
- Review your notes before coming to class
- Learn to work and cooperate with your fellow students
- Don't hesitate to ask questions
- Pay particular attention to graphs and figures ***
- Understand the terminology ***

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Key to Assigned Readings: **B = Barnes et al. 1998**; K = Kimmins et al. 2004;
P = Pallardy 2008; W = White et al. 2007; D = Daniel et al. 1979

Wk #	Date	Day	Topic	Assigned Reading
1	Aug 20	M	Course Introduction; Role of Silviculture	K – Ch 1 & 2
	22	W	Ecology and the Ecosystem Concept	B – Ch 1 ; K – Ch 3
			Basic Foundations of Silviculture	
	24	F	Genetics	B – Ch 4 ; W – Ch 1 & 5
2	27	M	Genetics	
	29	W	Genetics	
	31	F	Reproduction	B – Ch 5 ; P – Ch 2, pp 35-37; P – Ch 4
3	Sept 3	M	HOLIDAY	
	5	W	Reproduction	
	7	F	Reproduction	
4	10	M	Physiology – Carbon Relations	B – Ch 18, pp 486-503 ; P – Ch 5, pp 122-144; P – Ch 6, pp 180-196
	12	W	Physiology – Carbon Relations	
	14	F	Physiology – Carbon Relations	
5	17	M	Physiology – Water Relations	B – Ch 6, pp 145-148 ; P – Ch 5, pp 147-152; P – Ch 12 & 13
	19	W	Physiology – Water Relations	
			Individual Tree Growth & Development	
	21	F	Height Growth, Shoot & Crown Development	B – Ch 6, pp 122-130 ; P – Ch 2, pp 9-12; P – Ch 3, pp 45-55
6	24	M	<i>1st Hour Exam</i>	
	26	W	Height Growth, Shoot & Crown Development	
	28	F	Height Growth, Shoot & Crown Development	
7	Oct 1	M	Cambial Development	B – Ch 6, pp 138-144 ; P – Ch 2, pp 19-28; P – Ch 3, pp 55-67
	3	W	Cambial Development	
	5	F	HOLIDAY	

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Stand Growth & Development				
8	8	M	Root Development	B – Ch 6, pp 131-138; P – Ch 2, pp 28-35; P – Ch 3, pp 68-72
	10	W	Root Development	
	12	F	<i>2nd Hour Exam</i>	
9	15	M	Stand Growth & Development	B – Ch 15, 386-395; K – Ch 14, pp 372-375 & 398-402; D – Ch 12 & 14
	17	W	Stand Growth & Development	
	19	F	Stand Growth & Development	
10	22	M	Applied Tree Improvement (Dr. Rousseau)	W – Ch 11
	24	W	Applied Tree Improvement (Dr. Rousseau)	
	26	F	Applied Tree Improvement (Dr. Rousseau)	
11	29	M	Stand Growth & Development	
	31	W	Succession	B – Ch 17, pp 443-463; K – Ch 17, pp 463-491
	Nov 2	F	Succession	
			Site Considerations	
12	5	M	<i>3rd Hour Exam</i>	
	7	W	Site Classification Systems	B – Ch 13; K – Ch 6
	9	F	Site Quality Evaluation	
13	12	M	Soils	B – Ch 11; K – Ch 11, pp 284-299 & 323-328
	14	W	Soils	
	16	F	Soils	
14	19	M	Nutrition	B – Ch 19; K – Ch 5 (and self-study guides on MyCourses)
	21	W	HOLIDAY	
	23	F	HOLIDAY	
15	26	M	Nutrition	
	28	W	Nutrition	
	30	F	Hydrology	K – Ch 10, 255-269
16	Dec 3	M	Hydrology	
	Dec 10	M	Final Exam 8:00 – 11:00	

FO 4123/6123 – TENTATIVE LAB SCHEDULE

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Note: Lab sessions may occasionally be needed to “catch up” on lecture materials should the need arise. Lab sessions will also be used to go over the results of hour exams. Additional laboratory exercises may be added to the schedule.

Wk	Dates	Topic
1	Aug 22 & 23	
2	Aug 29 & 30	Quantitative Description of Stands
3	Sept 5 & 6	
4	Sept 12 & 13	
5	Sept 19 & 20	Water Relations Lab
6	Sept 26 & 27	
7	Oct 3 & 4	Holiday – No Lab
8	Oct 10 & 11	Density Management – Outdoor Lab
9	Oct 17 & 18	Density Management – Indoor Lab
10	Oct 24 & 25	
11	Oct 31 & Nov 1	
12	Nov 7 & 8	
13	Nov 14 & 15	
14	Nov 21 & 22	Holiday – No Lab
15	Nov 28 & 29	