

## COURSE DESCRIPTION

**Course Title:** FOR 5161 (section 1060) - Forest Sustainability, Productivity and Health

**Credits:** 3 credits

**Periods** Tuesday and Wednesday 6th period (12:50 - 1:40 PM)  
Room 222 (T) Newins-Ziegler Hall, & 106 (RNK) Rinker Hall(W)  
Thursday 6<sup>th</sup> - 8<sup>th</sup> periods (12:50 - 4:55 PM)  
Room 104 (UST) Ustler Hall

**Prerequisites:** Undergraduate course(s) in ecology, plant biology

**Instructors:** Dr. Eric J. Jokela, Professor of Silviculture  
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Dr. Gary F. Peter, Professor of Forest Biology  
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Dr. Robert A. Schmidt, Emeritus, Professor of Forest Pathology  
846-0868 e-mail: [raschmidt@ifas.ufl.edu](mailto:raschmidt@ifas.ufl.edu)

**Text:** None

### Purpose and Objectives:

- 1) Develop an understanding of the concepts and principles for sustainably managing for forest productivity and health, with emphasis on integrating genetic improvement, production ecology, stand dynamics, and disease management.
- 2) To provide experience in analyzing and interpreting research data, along with field examples of applied genetic and silvicultural techniques for sustainably managing for the productivity and health of managed forest ecosystems.

### Methods of Instruction:

- 1) Lectures: (2 hours per week) Provide major source of theory and technical information
- 2) Discussion: To emphasize important topics, Answer questions, Introduce problem sets
- 3) Problem Sets: Conduct data analyses, make integrated interpretations and prepare technical reports on six topics

4) Field Trips: Thursday afternoons will be for field trip(s) to observe and discuss all aspects of genetics, health and sustainability of managed ecosystems.

### Evaluation:

- 1) Three exams will be scheduled during a regular class period covering lectures, assigned readings, discussions, field trips, and problems sets. (50% of total grade)
- 2) Completion of problem set analyses and technical reports. Problem sets will be due 1 week after they are introduced in class. (50% of total grade)

Problem Set 1. Species – Selection of Angiosperm Species for the US Southeast Data Analysis and Interpretations (8.33%)

Problem Set 2. Genetic and Silvicultural Treatment Effects on Pines Wood Stiffness Data Analysis and Interpretations (8.33%)

Problem Set 3. Develop Biomass Estimation Equations for Loblolly Pine (8.33%)

Problem Set 4. Leaf Area Development, Aboveground Net Primary Production and Growth Efficiency in Pine (8.33%)

Problem Set 5. Modeling Disease Loss Impacts: Data Analysis and Interpretations (8.33%)

Problem Set 6. Economic Models for Southern Pine Plantations (8.33%)

3) Grades - the lower boundaries for each grade (% of total points) are:

A	90.0%	C+	77.0%	D	60.0%
B+	87.0%	C	70.0%	E	<60.0%
B	80.0%	D+	67.0%		

### Main Site for Lecture Slides and Information:

<http://login.live.com/login.srf?wa=wsignin1.0&rpsnv=11&ct=1262695500&rver=5.5.4177.0&wp=MBI&wlcxt=title&wreply=http:%2F%2Fcid-ed36a92a923209da.skydrive.live.com%2Fwelcome.aspx&lc=1033&id=250206>

**Username:** [forests@live.com](mailto:forests@live.com)

**Password:** for5161

## COURSE LEARNING OBJECTIVES

1. Explain current knowledge of fundamental biological mechanisms that control forest sustainability and productivity
2. Explain experimental methods and strategies used to elucidate the biological mechanisms that control forest sustainability and productivity
3. Interpret and design experiments to understand the theory and application of constraints to forest sustainability and productivity
4. Read and critically analyze primary literature in forest genetics, silviculture and pathology

### **PROFESSIONALISM STATEMENT**

Scientists are professionals guided by specific values and behaviors. These values and behaviors include respect, cooperation, active participation, intellectual inquiry, timeliness, and attendance. In addition to your performance on the graded materials, you will be evaluated on your growth as a professional. Professional characteristics include punctuality, attendance, participation, collegial attitude, and willingness to help others learn. If you are ill or an emergency occurs, contact your instructor **PRIOR TO** the scheduled class time; otherwise your attendance and participation are firm expectations.

### **CLASS POLICIES**

**LATE ASSIGNMENTS-** A penalty of 33% per day will be taken off for each late assignment. Reasonable explanations for late assignments will be taken under consideration, particularly if communicated ahead of the deadline.

**MAKEUP EXAMS-** Make-up exams or course work will be accepted only by special permission of the course instructors. Permission to make up work will be granted on a case by case basis and requests will not always be approved.

### **ACADEMIC HONESTY, SOFTWARE USE, UF COUNSELING SERVICES, SERVICES FOR STUDENTS WITH DISABILITIES**

**Preamble:** In adopting this honor code, UF students recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education depends on community acceptance and enforcement of the honor code.

**The Honor Code:** *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*

On all work submitted for credit by students at the University, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The University requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the University will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

**Student responsibility:** Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, or Student Honor Court.

**Faculty responsibility:** Faculty members have a duty to promote honest behavior and to avoid practices and environments that foster cheating in their classes. Teachers should encourage students to bring negative conditions or incidents of dishonesty to their attention. In their own work, teachers should practice the same high standards they expect from their students.

**Administration responsibility:** As highly visible members of our academic community, administrators should be ever vigilant to promote academic honesty and conduct their lives in an ethically exemplary manner.

## **STUDENT CONDUCT CODE**

Students enjoy the rights and privileges that accrue to membership in a university community and are subject to the responsibilities that accompany that membership. For a system of effective campus governance, it is incumbent upon all members of the campus community to notify appropriate officials of any violations of regulations and to assist in their enforcement. The University's [conduct regulations](#), available to all students in the [Student Guide](#), are set forth in Florida Administrative Code. Questions can be directed to the Dean of Students Office. This is the first phase of career development and the faculty believes that students need to behave as professionals, conscientiously following commonly accepted norms and meeting deadlines.

**ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES-** Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodations.

## **UF COUNSELING SERVICES-**

The University of Florida knows that your well-being plays a major role in your academic, professional and personal success. With this in mind, it provides its graduate students with a number of services that aid you in maintaining a safe, healthy lifestyle and enriching personal life:

*Counseling Center*

<http://www.counsel.ufl.edu/>

*Student Mental Health*

<http://shcc.ufl.edu/smhs/>

*Center for Sexual Assault/Abuse Recovery and Education*

<http://shcc.ufl.edu/care/>

*Student Health Care Center*

<http://shcc.ufl.edu/>

*International Center*

<http://www.ufic.ufl.edu/>

*Dean of Students Office*

<http://www.dso.ufl.edu/>

LEC	DATE	TOPIC	INST	Due & Readings
1	T 1/10	INTRODUCTION – Global Trends in Natural Forests & Plantations	All, GP	Carle & Holmgren
2	W 1/11	FUNDAMENTAL CONCEPTS – Evolution of Southern Pine Plantations/Silviculture	EJ, ALL	
3	<b>R 1/12</b>	Evolution of Southern Pine Plantations/Silviculture - continued	All	
4	T 1/17	FUNDAMENTAL CONCEPTS-Genetics 1: Forest Genetics	GP	Forest Genetics Chap. 5 & 6
5	W 1/18	Defining & Measuring Productivity	EJ	
6	<b>R 1/19</b>	<b>Field Trip ACMF - Contrasting ecosystem management inputs/carbon dynamics - Introduce Problem Set 1</b>	All	
7	T 1/24	FUNDAMENTAL CONCEPTS-Genetics 2: Genotype x Environment Interactions	GP	
8	W 1/25	FUNDAMENTAL CONCEPTS-Genetics 3: Geographic Variation	GP	Forest Genetics Chap. 8 & 9
9	<b>R 1/26</b>	<b>Field Trip Waldo PPINES</b>	ALL	
10	T 1/31	SEED ORCHARDS – Genetics 1: Selecting Species for Plantation Establishment	GP	<b>Problem Set 1</b>
11	W 2/1	SEED ORCHARDS – Genetics 2: Discussion of provenance differences	GP	
12	<b>R 2/2</b>	<b>Field Trip to Chiefland State Nursery - discussions with S. Gilley Introduce Problem Set 2</b>	All	
13	T 2/7	NURSERIES- Genetics 1 Planting stock	GP	Forest Genetics Chap. 11 & 12
14	W 2/8	NURSERIES- Genetics 2 Deployment strategies- Clonal forestry	GP	Forest Genetics Chap. 16
15	<b>R 2/9</b>	NURSERIES- Genetics 3 Case study of slash pine tree improvement – SUSTAINABILITY/CONSERVATION - Genetics	GP	Forest Genetics Chap. 10
16	T 2/14	<b>No Class</b>	GP	
17	W 2/15	Jason Smith – Exotic organisms in forest (insects & diseases)	GP	<b>Problem Set 2</b>
18	<b>R 2/16</b>	<b>EXAM 1</b>	GP	
19	T 2/21	Managing Resource Availability <b>Introduction to Problem Set 3 (Developing Biomass Estimation Equations)</b>	EJ	
20	W 2/22	STAND ESTABLISHMENT - Dry Matter Production 1	EJ	
21	<b>R 2/23</b>	STAND ESTABLISHMENT- Dry Matter Production 2 & MID ROTATION STANDS – Dynamics and Cycling of Nutrients 1	EJ	
22	T 2/28	MID ROTATION STANDS –Dynamics and Cycling of Nutrients 2	EJ	
23	W 2/29	Carbon management strategies	CG	
24	<b>R 3/1</b>	<b>Management Impacts on Ecosystem Carbon - Field Trip – Introduce Problem Set 4 – (Leaf Area Development &amp; Growth Efficiency)</b>	TM/CG	<b>Problem Set 3</b>
25	<b>3/5-3/9</b>	<b>SPRING BREAK – No Class</b>		
26	T 3/13	STAND ESTABLISHMENT - Plant Interactions and Limitations to Growth 1	EJ	
27	W 3/14	STAND ESTABLISHMENT - Plant Interactions and Limitations to Growth 2	EJ	
28	<b>R 3/15</b>	<b>Bioenergy – The Future</b>	GP	
29	T 3/20	MID ROTATION STANDS- Concepts of Tree Nutrition	EJ	
30	W 3/21	MID ROTATION STANDS -Forest Fertilization	EJ	
31	<b>R 3/22</b>	<b>Pitch Canker – Nutrition Field Trip</b>	All/EB	<b>Problem Set 4</b>
32	T 3/27	MID ROTATION STANDS- Silvics: Stand Density Management – Theoretical and Applied Considerations 1	EJ	
33	W 3/28	MID ROTATION STANDS- Silvics: Stand Density Management 2	EJ	
34	<b>R 3/29</b>	<b>EXAM 2</b>	EJ	
35	T 4/3	INTRODUCTION TO FOREST HEALTH - SCOPE, IMPORTANCE AND CONCEPTS –	RS	
36	W 4/4	PEST HAZARD – ECOTYPES AND OCCURRENCE	RS	
37	<b>R 4/5</b>	Pest Management: Strategies and Tactics; <b>Visit Clinical pathology lab in Gainesville after lecture</b>	RS/EB	
38	T 4/10	COMPARATIVE EPIDEMIOLOGY – NATURAL VS. PLANTED STANDS AND THE ROLE OF FUNCTIONAL DIVERSITY	RS	
39	W 4/11	CASE STUDY – FUSIFORM RUST OF SOUTHERN PINES <b>Introduce Problem Set 5 (Modeling Disease Loss Impacts)</b>	RS	
40	<b>R 4/12</b>	<b>Rayonier Visit (ALL DAY) &amp; Introduce Problem Set 6 – (Economics)</b>	All	
41	T 4/17	GENETIC DISEASE RESISTANCE	RS	
42	W 4/18	A CASE STUDY – SOUTHERN PINE BEETLE	RS	<b>Problem Set 5</b>
43	<b>R 4/19</b>	SUSTAINABILITY- Site Sustainability, Health Comparative Epidemiology of host pathogen systems, Carbon credits...	EJ, RS	

44	T 4/24	SUSTAINABILITY	All	
45	W 4/25	<b>EXAM 3</b>	RS	<b>Problem Set 6</b>