

**FO 4323/6323 Forest Resource Management**  
**Department of Forestry--Mississippi State University**  
**Syllabus Fall 2007**

**Instructor:** Donald L. Grebner  
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**Office Hours:** 9:00 am – 10:00 am MWF  
(Please make an appointment whenever possible)

**Teaching Assistants:**

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**Course Description:**

(Prerequisites: FO 4113/6113, FO 4223/6223, FO 4233/6233, FO 4231/6231, FO 4213/6213). Three hours lecture. Three hours laboratory provides application of quantitative decision making techniques to stand-level and forest -wide management problems. Topics include land classification, forest production, optimal rotation analysis, and harvest scheduling.

**Course Objective:**

The intent of this course is to provide the students with tools to analyze and manage a forest composed of multiple stands to meet a variety of ownership objectives. To accomplish this objective, we will explore classical through current approaches to the management of private and public forests. This will include land classification, prescription development, forest production, harvest scheduling and regulation. Emphasis in this course is practical exercises to illustrate concepts discussed in the lecture. The instructor's primary goal is for students to demonstrate their knowledge of quantitative tools to solve and assess forest management problems. Specific goals include:

**Lectures:** 12:30pm – 1:45pm, TTH, Thompson Hall, Room A208

**Prerequisites:**

Forest Biometrics (FO 4213/6213), Forest Operations and Harvesting (FO 4233/4231, 6233/6231), Practice of Silvicultural (FO 4223/4221, FO 6223/6221), and Forest Resource Economics (FO 4113/6113) are prerequisites for this course.

**Primary Text:**

Davis, L.S., Johnson, K.N., Bettinger, P.S., and T.E. Howard. 2001. Forest Management, 4<sup>th</sup> Edition. McGraw-Hill, Inc. New York.

Online resources for this text can be found at this website:

<http://warnell.forestry.uga.edu/Warnell/Bettinger/mgtbook/index.htm>. This resource link provides answers to chapter problems.

**Additional Required Readings (Not Optional):**

These reading assignment will include specific chapters from the following sources:

- Bettinger, P. and M.G. Wing. 2004. Geographic Information Systems: Applications in Forestry and Natural Resources Management. McGraw-Hill, Inc., New York, NY. 230 p.
- Rideout, D.B. and H. Hessel. 1997. Principles of Forest & Environmental Economics. Resource & Environmental Management, LLC, Fort Collins, CO.
- Mengel, D.L. and D.T. Tew (Editors). 1991. Proceeding of a Symposium on Ecological Land Classification: Applications to Identify the Productive Potential of Southern Forests. USDA Forest Service, Southeastern Forest Experiment Station, General Technical Report SE-68. 149 p.
- Walker, L.C. 1999. The North American Forests- Geography, Ecology, and Silviculture. CRC Press, Boca Raton, FL. 398 p.
- Walker, L.C. and B. P. Oswald. 2000. The Southern Forest – Geography, Ecology, and Silviculture. CRC Press, Boca Raton, FL. 332 p.
- Yarrow, G.K. and D.T. Yarrow. 1999. Managing Wildlife. Sweet Water Press, Montgomery, AL. 588 p.

**Supplemental Readings (Optional):**

The citations below are supplemental readings that are not a requirement, but will aid in your efforts to master the material. In some cases, the material is not found in the primary text. These supplemental readings will come from the following sources:

- Bullard, S.H. and T.J. Straka. 1998. Basic Concepts in Forest Valuation and Investment Analysis, 2<sup>nd</sup> Edition. Preceda, L.L.C, Auburn, AL.
- Buongiorno, J. and J.K. Gilless. 2003. Decision Methods for Forest Resource Management. Academic Press, Burlington, MA. 439 p.
- Leuschner, W.A. 1984. Introduction to Forest Resource Management. Krieger Publishing Company, Malabar, FL. 298 p.
- Leuschner, W.A. 1990. Forest Regulation, Harvest Scheduling, and Planning Techniques. John Wiley & Sons, Inc., New York, NY. 281 p.

**WebCT:**

Please visit <http://webct.msstate.edu/>. The instructor will list all assignments, grades, reading materials other than the required text, lecture notes, and other useful pieces of information. In addition, any use of the chat rooms, email, and bulletin boards for the course require that you behave in a professional manner. Therefore, use of profanities and transmission of obscene materials is prohibited.

## **Grading:**

For undergraduate students, grades will be based on class attendance, lab exercises, lecture quizzes, lab quizzes, lab final quiz, 2 midterm lecture exams, lab project, and a final lecture exam. For graduate students, grades will be based on lab and lecture quizzes, lab exercises, 2 midterm lecture exams, a lab project, a final lecture exam, and a term paper. Final grades will be distributed as follows:

<u>Undergraduate</u>		<u>Graduate</u>	
Class attendance	5%	Lab exercises	5%
Lecture quizzes	5%	Lecture quizzes	5%
Lab exercises	5%	3 Lab quizzes	5%
3 lab quizzes	15%	Lab project	10%
Lab project	20%	2 midterm lecture exams (15% each)	30%
2 midterm lecture exams (15% each)	30%	Term paper	20%
Final lecture exam	20%	Final exam	25%

**Class attendance scores are adjusted downwards 1 point for each class missed with an unexcused absence (please note MSU policy). For instance, all students receive 5 points towards their final course grade for attending all lecture sessions. For each class they miss, they will receive 1 point less towards their final grade until their 5 points are diminished.**

### *Notes on grades:*

A = 90-100

B = 80-89.9

C = 70-79.9

D = 60-69.9

F = Below 60

### *Bonus Points:*

During the semester I will be giving assignments either in class or out of class to improve in-class participation. These assignments will not be graded, but will count as “bonus” points to be used on your lecture exams. These “bonus points” will be added to the total score of your two lecture exams before averaging. For instance, if you received scores of 75 and 85 on lecture exams your average (which is only 30% of your overall grade) is an 80. If you received 10 “bonus points,” then your lecture exam average would be 85  $((75+85+10)/2)$ .

There will be no make up exams or quizzes!

### **Lecture Exam Dates:**

September 27, November 1, and December 10, 2007.

### **Lecture Exam Protocol:**

- Bring a calculator (a back up won't hurt), ruler, pens, pencils, and erasers.
- Arrive on time or earlier.
- Leave one empty seat between each student in class unless class enrollment prohibits this action.
- All materials except the above should be placed on the floor or on a chair pushed under the table.
- **Lecture exams and lab quizzes will encompass materials from lecture and reading assignments!!**
- Midterm lecture exams and lab quizzes are not comprehensive.

- **Final lecture exam and final lab quiz are comprehensive!!**

### Lecture Quizzes:

Lecture quizzes may be given at any time during any of the scheduled lectures. Quizzes could be given at the beginning, middle, near lecture period's end. **Lecture quizzes will be of short duration and be comprised of materials from previous lectures and assigned readings.** Your lowest quiz will be dropped from the final lecture quiz score. If a student misses a lecture quiz without a valid reason (see MSU policy), then the student gets a **zero** for that quiz.

### Lab Quiz Schedule:

Lab Quiz 1 Section 2:	9/20
Lab Quiz 1 Section 3:	9/22
Lab Quiz 2 Section 2:	10/18
Lab Quiz 2 Section 3:	10/20
Lab Final Quiz Section 2	11/29
Lab Final Quiz Section 3:	12/1

### Lab Quiz Protocol:

- Bring a calculator (a back up won't hurt), ruler, pens, pencils, and erasers.
- Arrive on time or earlier.
- Leave one empty seat between each student in lab if possible.
- **Quizzes will encompass materials from lab and reading assignments.**
- Lab quizzes are not comprehensive.
- **Final Lab Quiz is comprehensive!!**

### Lab Assignment Requirements:

During lab meetings graded exercises will be introduced and worked on. These exercises are designed to reinforce and expand upon the concepts presented in lectures. **Lab exercises must be completed by the beginning of the following lab. Lab assignments turned in late will not be accepted.** In addition, when completing a lab assignment the following information must be included to garner full credit.

- Title page with name, signature, lab section number, course number, date, and lab assignment name.
- Include a table of contents.
- If calculations are made, then present them in a clear and concise fashion. They can be hand written or printed from a computer.
- If an assignment requires discussion, then type your responses in a clear and concise fashion.
- Lab assignments should be stapled in the upper left hand corner.
- If there are computer print outs, then attach them in an appendix noted in the table of contents.
- Format requirements include:
  - Use 1 inch margins
  - New Times Roman font
  - 12 point font

### Lab Project:

The goal of doing the class project is to help students pull together the concepts they learn in lecture and lab for developing an abridged assessment of alternative forest management strategies. This will be important when they take Professional Practices FO 4423/6423. The lab will be given out around the mid point of the semester and is designed to be completed in a 4-6 weeks of time. The project packet will contain the specific information necessary for completing the assignment.

***Final Project Due: 12/3 at 5:00 pm***

**No credit will be given for a final project submitted after this date and time!**

**Important Dates:**

August 20:	Classes begin.
August 24:	Last day for dropping a course without a grade (5:00 pm).
August 27:	Last day for registration or adding a course (5:00 pm).
September 3:	Holiday.
October 1-2:	Fall break – no classes.
October 3:	Last day to drop a class with a “W” grade (5:00 pm).
November 21:	Thanksgiving Holiday begins at end of class day.
December 3:	Classes end.
December 5-11:	Final examinations.

**University Academic Attendance Policy (AOP 12.09 - Class Attendance):**

Upon registration, the student accepts the responsibility of attending all classes and doing any work the instructor may prescribe. When absence from class is essential, the student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence. The student is also responsible for making arrangements that are satisfactory to the instructor in regard to work missed. These arrangements should be made prior to the absence when possible. Among the reasons absences are considered excused by the university are the following:

- Participation in an authorized university activity.
- Death or major illness in a student’s immediate family.
- Illness of a dependent family member.
- Participation in legal proceedings or administrative procedures that require a student’s presence.
- Religious holy day.
- Illness that is too severe or contagious for the student to attend class (to be determined by a physician).

- Required participation in military duties.
- Mandatory admission interviews for professional or graduate school which cannot be rescheduled.

It is the student's responsibility to secure documentation of an illness from a physician. The documentation must contain the date and time of the illness and doctor's opinion that the student was too ill to attend class. Based upon the documentation, the instructor will decide whether makeup work will be allowed.

Because absence from class is detrimental to the learning process, faculty may choose to penalize the student for excessive absences, which may result in a lower grade. Faculty must specify their attendance requirements as related to grading in the course syllabus.

Instructors may choose to record and report the absences of all students on both the midterm (where applicable) and final grade reports submitted to the Registrar. All absences and last dates of attendance (where applicable) will become a part of the student's file in the Registrar's Office. Instructors may report absences to the Division of Student Affairs at any time they feel it appropriate to do so and are expected to report students with continued consecutive absences.

For more information, please visit this link <http://www.msstate.edu/dept/audit/1209.html>.

### **Persons with Disabilities:**

If you have a disability and desire any assistance devices, services, or other accommodations to participate in the lecture (including examinations), laboratory, or field trips associated with this course, please contact me in room 329 Thompson Hall, or call 325-0928 during normal business hours, as soon as possible to discuss the necessary accommodations. For more information on MSU policies see <http://www.msstate.edu/dept/audit/91121.html>.

### **Academic Misconduct (AUP 12.07 – Academic Misconduct):**

“Academic misconduct includes, but is not limited to deceptive acts such as the following:

- Using unauthorized materials (crib notes, books, etc.) as an aid during an examination.
- Looking at or using information from another person's examination, report or assignment.
- Providing assistance to, or receiving information from another person in any manner prohibited by the instructor.
- Submitting any course materials or activities not the student's own.
- Using the ideas, organization, or words of another from a book, article, paper, computer file or other source without giving proper credit following accepted citation rules (plagiarism).”

Sanctions for academic misconduct include a grade of F in the course and suspension from the University. For more information see: <http://www.msstate.edu/dept/audit/1207.html>.

*“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.”*

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

### **Student Responsibilities:**

- Wearing hats, chewing tobacco and displaying associated spittoon, and food is prohibited.
- Read syllabus and other materials provided by instructor. Reading assignments should be done prior to class.
- Buy the primary textbook if available. The instructor knows that it is expensive, but it is a key resource for the student’s quest to becoming a professional forester. The marginal benefit owning the textbook greatly outweighs the marginal cost of purchasing it.
- Attend lectures and pay attention. Disruptive and/or disrespectful students will be evicted from the classroom. Evicted students must discuss re-entry to the classroom with the Department of Forestry Head.
- Take good notes in class. Many successful students in the past rewrote their notes after each lecture.
- Review notes daily and ask about information not understood. The instructor will be available immediately after class, during office hours, and by appointment. If a student requires assistance at another time, then expect the possibility that the instructor may not be able to help them at that exact moment. If the instructor can not help the student at that moment, then he will make arrangements to help them at another date and time. **Key Point: Don’t wait until the day before of the day of the Exam to ask your questions!!** To the instructor, this displays a lack of interest and professionalism by the student. *If the student doesn’t care, then why should the instructor?*
- Demonstrate your desire to learn the subject and apply it to your profession. If you are not interested in improving your professional knowledge, enroll in another degree program. If you have to see the instructor 5 times to understand a concept, then that is okay. To the instructor, the student is displaying tenaciousness and desire to learn the material.
- If there are extra credit opportunities, then take advantage of them. If the student can’t participate, then contact instructor prior the event. No extra credit will be given after the event.
- Expect materials presented by a guest speaker to show up in either quizzes or exams. Their presentations are expected to add positive reinforcement of course concepts and applications in the profession.
- Although some memorization is necessary, it is better to learn (rather than memorize) the material presented by the instructor. Memorization is only part of the learning process. The instructor wants the student to apply their newly won knowledge. Don’t start studying one week or less prior to the exam. This strategy has hurt many past students. Start as soon as you get new material. **Practice makes perfect.** If the instructor gives an example problem in class, then redo it. In addition, change the numbers and repeat the exercise. Many student struggle because they don’t practice the material enough. **Mastering important concepts is essential in becoming a successful professional.**
- Pass exams.

## TENTATIVE LECTURE TOPIC SCHEDULE

### I. Background Concepts

Week 1:

8/21: Introduction  
Reading: Davis, Johnson, Howard, and Bettinger Chapters 1 & 2

Week 2:

8/23: Land Classification  
8/28: GIS and Land Classification  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 3; Mengel & Tew (1991); Bettinger & Wing (2004)

Week 3:

8/30: Silvicultural Systems and Stand Prescriptions  
9/4: Silvicultural Systems and Stand Prescriptions by Dr. Scott Roberts  
Reading: Davis, Johnson, Howard, and Bettinger Chapters 3; Walker (1999); Walker & Oswald (2000); Yarrow & Yarrow (1999)

Week 4:

9/6: Silvicultural Systems and Stand Prescriptions by Dr. Andrew Londo  
9/11: Silvicultural Systems and Stand Prescriptions by Dr. Jeanne Jones  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 3; Rideout & Hesseln (1997)

Week 5:

9/13: Forest Production/Optimal Rotation Analysis  
9/18: Linear Programming (LP) Problem Formulation and Solving Problems  
Reading: Davis, Johnson, Howard, and Bettinger Chapters 4-6; Rideout & Hesseln (1997); Buongiorno and Gilless (2003)

Week 6:

9/20: Linear Programming (LP) Problem Formulation and Solving Problems  
9/25: Solving Problems with LINDO Software and Interpreting Solutions  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 6; Buongiorno and Gilless (2003)

Week 7:

9/26: Review Session (6:00 pm Room A208)  
9/27: Exam #1  
Reading: N/A

### II. Forest Level Management

Week 7:

10/2: No Class (Holiday)  
10/4: Review Exam/Classical Forest Management Techniques  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 10; Leuschner (1984)

Week 8:

10/9: Classical Forest Management Techniques  
10/11: Timber Harvest Scheduling with LP (Perez-Verdin)  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 11; Rideout & Hesseln (1997);  
Buongiorno and Gilless (2003)

Week 9:

10/16: Timber Harvest Scheduling with LP  
10/18: LP Exercise  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 11; Rideout & Hesseln (1997);  
Buongiorno and Gilless (2003)

Week 10:

10/23: TBA (Wilkinson)  
10/25: Integer Programming (Wilkinson)  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 6; Buongiorno and Gilless  
(2003)

Week 11:

10/30: Goal Programming  
10/30: Review Session (6:00 pm Room A208)  
11/1: Exam #2 (Wilkinson will proxy)  
Reading: Davis, Johnson, Howard, and Bettinger Chapter 6; Buongiorno and Gilless  
(2003)

### III. Special Forest Management Topics and Issues

Week 12:

11/6: Review Exam/Spatial Adjacency Issues  
11/8: Harvest Scheduling from a TIMO Perspective, Keith Hilpp, Molpus Woodlands  
Group, MS  
Reading: Davis, Johnson, Howard, and Bettinger Chapters 13 & 14; Handouts

Week 13:

11/13: Forest Management from a Consultant's Perspective, Steve Bulter, TimberCorp,  
MS  
11/15: Harvest Scheduling from Plum Creek's Perspective, Tommy Tadlock, Plum  
Creek  
Reading: Handouts

Week 14:

11/20: State Forestlands Planning and NIPF Assistance, Jeff Ware, Mississippi Forestry  
Commission, Tupelo  
11/27: Mississippi National Forest Planning, Jeff Long, US Forest Service, MS  
Reading: Handouts

Week 15:

11/29: Forest Taxation by Dr. Debbie Gaddis  
Reading: Handouts

Exam Week:

12/10: Final Exam 8:00-11:00 am

### TENTATIVE LABORATORY TOPIC SCHEDULE

		<b>Dates</b>
Week 1:	Land Classification	8/20-24
Week 2:	GIS Basics (Wilkinson)	8/27-8/31
Week 3:	Land Classification with GIS (Wilkinson)	9/4-9/7
Week 4:	Financial Analysis/Forest Production/Optimal Rotation	9/10-14
Week 5:	Lab Quiz/Classical Forest Management	9/17-21
Week 6:	Linear Programming Problem Formulation/Graphical Solutions	9/24-28
Week 7:	Timber Harvest Scheduling with LP	10/2-5
Week 8:	Timber Harvest Scheduling with LP (Grebner/Wilkinson)	10/8-12
Week 9:	Lab Quiz/Work on Group Projects <sup>+</sup>	10/15-19
Week 10:	Work on Group Projects <sup>+</sup> (Wilkinson)	10/22-26
Week 11:	Work on Group Projects <sup>+</sup> (Wilkinson)	10/29-11/2
Week 12:	Work on Group Projects <sup>+</sup>	11/5-9
Week 13:	Work on Group Projects <sup>+</sup>	11/12-16
Week 14:	No Lab (Holiday)	11/19-23
Week 15:	Evaluations and Final Lab Quiz	11/26-11/30

<sup>+</sup> Even though work on group projects is expected outside of lab periods, attendance on these dates is required. Failure to attend will adversely affect the class attendance grade.

#### Reading Assignments

Week 1:	Davis, Johnson, Howard, and Bettinger Chapter 3; Mengel & Tew (1991); Bettinger & Wing (2004)
Week 2:	Davis, Johnson, Howard, and Bettinger Chapter 3; Mengel & Tew (1991); Bettinger & Wing (2004)
Week 3:	Davis, Johnson, Howard, and Bettinger Chapter 3; Mengel & Tew (1991); Bettinger & Wing (2004)
Week 4:	Davis, Johnson, Howard, and Bettinger Chapter 4,5, & 7; Bullard and Straka (1998) Chapters 1-4; Rideout & Hesseln (1997)

- Week 5: Davis, Johnson, Howard, and Bettinger Chapter 3; Leuschner (1984)
- Week 6: Davis, Johnson, Howard, and Bettinger Chapter 6; Leuschner (1984)
- Week 7: Davis, Johnson, Howard, and Bettinger Chapter 10; Leuschner (1990)
- Week 8: Davis, Johnson, Howard, and Bettinger Chapter 10-11; Rideout & Hessel (1997);  
Leuschner (1990)
- Week 9: None
- Week 10: None
- Week 11: None
- Week 12: None
- Week 13: None
- Week 14: None
- Week 15: No Lab
- Week 16: Evaluations and Final Quiz

Sample