

**SYNOPSIS AND SCHEDULE
FOREST MEASUREMENTS (FO 2213)
SPRING 2010**

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Office hours: 8:00 a.m. to 5:00 p.m. or by appointment

Time/Place: Lectures @ 10:00-10:50 a.m., MWF in Room 118TH

Prerequisite: ST-2113 or equivalent

I. OBJECTIVES: This course is designed to provide students with a comprehensive knowledge of the methods commonly employed to measure standing and felled trees, and inventory forest stands. Operational field experience in the techniques taught in this course is given later in the College of Forest Resources Summer Field Program course **Forest Description and Analysis (FO 3015)**. To successfully complete this course, students are expected to demonstrate a fundamental understanding in each of the following study areas:

- . Simple linear regression,
- . Units of measurement and conversions between units,
- . Stand structure elements,
- . Standing tree dbh, height, and form measurement,
- . Felled tree measurement and volume determination,
- . Tree volume equation use,
- . Simple random sampling,
- . Fixed area plot sampling
- . Plot-less sampling (point sampling),
- . Double plot and point sampling,
- . Stratified sampling,
- . Components of stand growth and stand table growth projection,
- . Site index and stand density determination,
- . Tree profile measurement and volume equation construction,
- . Local volume table construction,
- . Probability proportional to size sampling,

The primary emphasis of the course is to give the student a reasonable knowledge and understanding of how to apply mensuration procedures to solve forestry problems. Problem solving methods are taught and applied to real forestry problems and data.

II. GRADES/TEST/HOMEWORK: Each student's grade will be based on three 100 point hour examinations (75% of final grade), approximately 4 graded 20 point problem sets (20% of final grade), and weekly pop-quizzes (5% of final grade). Letter grades will be assigned in accordance with any notable exceptions to the follow scale:

Tentative dates for the hour exams are:

1st Hour Exam = Wednesday, February 10, 2010

2nd Hour Exam = Wednesday, March 17, 2010

3rd Hour Exam = Wednesday, April 14, 2010

<u>Average score</u>	<u>Letter grade</u>
0 - 59.5	F
59.6 - 69.5	D
69.6 - 79.5	C
79.6 - 89.5	B
89.6+	A

Grades will not be curved and the lowest test or homework grade will not be dropped.

The problem set grade score will not be counted in the grade average of students not having a passing average grade (59.6%+) on the three hour examinations plus pop quiz points. The student must pass as an individual, before group efforts count.

III. COURSE REFERENCES (* = course text book):

The course syllabus, course notes, and problem sets are located on the CFR web site at:

<http://www.cfr.msstate.edu/students/forestrypages/fo2213.asp>

or on the CFR Lab Server in the N:\FO2213 folder.

*Avery, T. E. and H. E. Burkhart. 2002. Forest Measurements. 5th ed. McGraw-Hill Inc., N.Y., N.Y. 458 pp.

Freese, F. 1962. Elementary Forest Sampling. Agricultural Handbook No. 232, USDA. Reprinted by OSU Book Stores, Inc., Corvallis, Oregon, 1983. 91 pp.

Freese, F. 1967. Elementary Statistical Methods. Agricultural Handbook No. 317, USDA. Reprinted by OSU Book Stores, Inc., Corvallis, Oregon, 1983. 87 pp.

Husch, B., C. I. Miller, and T. W. Beers. 1982. Forest Mensuration. 3rd ed. John Wiley and Sons, Inc., N.Y., N.Y. 402 pp.

IV. ACADEMIC MISCONDUCT

Professional Expectations:

Please read and follow the advice given in the “*Professional Expectations for Students in the Forestry Program*” document provided at the end of this syllabus.

All occurrences of academic misconduct will be dealt with in accordance with guidelines and procedures outlined in the Academic Misconduct Policy at:

http://www.msstate.edu/web/student_policies.html

Academic misconduct is any activity which may compromise the academic integrity of the University. Academic misconduct includes, but is not limited to, deceptive acts such as:

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 assistance from, another person in any manner prohibited by the instructor.

Possessing or providing an examination or assignment, or any part thereof, at any time or in any manner not authorized by the instructor.

Taking a quiz, examination, or similar evaluated assignment for another person; or utilizing another person to take a quiz, examination, or similar assignment in place of oneself.

Submitting any course materials or activities not the student’s own, allowing such a submission to be made for oneself, or making such a submission for another.

Using the ideas, organization, or words of another from a book, article, paper, computer file, or other source in any assignment without giving proper credit following accepted citation rules (plagiarism).



**“On my honor, as a Mississippi State Student,
I have neither given nor received unauthorized
assistance on this academic work.”**

Student Signature

V. LECTURE, TEST, AND HOMEWORK SCHEDULE:

Topic:

- . 0: Introduction to forest measurements, syllabus, exams, grading, personal conduct
- . 1: Forest structure, and measurement system(linear and area)
- . 2: Statistics review
- . 3: Regression methods
- . 4: Dbh, bark thickness, height, form, and basal area (**PROBLEM SET 1 IS DUE**)
- . 5: Regressions of dbh(ob) on dbh (ib), and ln height on 1/dbh
- . 6: Dbh and basal area growth, and the regressions of dbh and basal area growth on dbh
- . 7: Tree height measurement methods and instruments
- . 8: Log and tree cubic feet volume determination
- . 9: Regression of tree volume on dbh²(height)
- . 10: Log board feet volume rules
- . 11: Volume equations and tables (**PROBLEM SET 2 IS DUE**)

- . 12: Inventories with sample strips or plots
- . 13: Height sub-sampling for volume estimation
- . 14: Summarizing plot volumes and expansion to per acre and total tract volumes
- . 15: Confidence intervals
- . 16: Sample size estimation
- . 17: Preparation of stand and stock tables from plot samples
- . 18: Point sampling (**PROBLEM SET 3 IS DUE** at end of point sampling topic)

- . 19: Double point sampling and the regression of volume on basal area
- . 20: Sampling error and confidence interval for double point sampling
- . 21: Sample size estimates for double point sampling
- . 22: Strip cruising
- . 23: Stratification-combining stand volumes
- . 24: Stratification-sample allocation
- . 25: Stratification-gains

- . 26: Stand quality, site index, density and structure
- . 27: Site index equation construction using the regression of ln Ht on 1/age
- . 28: Utilizing site index functions and tables (**PROBLEM SET 4 IS DUE**)
- . 29: Growth ratio index and stand and stock table projection
- . 30: Stand table projection
- . 31: Stand growth components
- . 32: Forest inventory design and analysis (**PROBLEM SET 5 IS DUE**)

- . 33: Length/distance, area, direction, and land description
- . 34: The 7.5 minute quadrangle

Professional Expectations for Students in the Forestry Program

1. JUSTIFICATION:

Forestry is a profession, and foresters are expected to conduct themselves as professionals beginning with their education. Behaviors and habits developed now will carry over and affect your career progress. Forestry is more than trees; working with people is an important element of your successful career. You will interact with people from all walks of life, in all manner of ways. Respecting others, being aware of how your behavior affects them, and the impression you are conveying is crucial to your professional development. Your demeanor and actions reflect on you and Mississippi State University, the College of Forest Resources and the Department of Forestry, our faculty, and the student body. Therefore, you should conduct yourself appropriately with regard to conduct, appearance, and respect for others.

2. EXPECTATIONS:

The Department of Forestry has collectively agreed that the following expectations relative to behavior and habits apply in classes, within Thompson Hall, on buses and vans, and during indoor or outdoors laboratories, which include trips to industrial plants, field and industrial operations, and field sites:

Conduct

- a. ***Arrive to class on time.*** If you have a schedule that causes you to be late, notify the instructor as early as possible at the start of the semester.
- b. ***Be attentive, engaged, and responsive in the classroom.*** Devote your total attention to classroom activities such as lectures, discussions, and note taking. Participate in instructor/student dialog, while taking notes. Faculty also encourage student engagement in the form of questions and discussion. Refrain from non-class related topics or activities during class such as private conversations, passing notes, text messaging, reading non-class related materials (e.g., newspapers), and studying for other courses. No disruptive conversations (e.g., talking, laughing) or conduct will be allowed while the instructor is lecturing or during an exam period (Student Affairs OP 91.109).
- c. ***Disable your cell phones*** and other electronic devices such as smartphones and PDAs (you may adjust your cell phones to vibrate mode to facilitate Maroon Alerts only). Notebook computers may be used for class-related work. Other uses will not be tolerated. If there is an imperative need to have a cell phone due to an impending personal emergency, inform the instructor prior to class. In general, there will be zero tolerance for the use of electronic devices unless otherwise permitted by the instructor.
- d. ***Tobacco products*** may not be used in classes, within Thompson Hall, on buses and vans, and during indoor or outdoors laboratories, which includes trips to industrial plants, field and industrial operations, and field sites.
- e. ***Do not leave the classroom*** during lecture, discussions, or when taking an exam unless it's an emergency. Go to the restroom before class. If you arrive to an exam after a fellow student has already completed their exam and left the classroom, you may not be permitted to take the exam. Students leaving the classroom during lecture, discussion, or when taking an exam may be readmitted only at the discretion of the instructor. In cases of unexpected, sudden, or extreme illness the student should seek medical attention, and not return to the classroom until they have met with the instructor before the next class period. Please consider the health of others if you think you have an infectious condition

or consider not coming to class until you are well. Inform the instructor at the start of the semester or class if you have a medical condition that may require you to leave the classroom and sit near a doorway.

- f. ***No eating and drinking during class.*** If you have a medical problem that requires food or drink, inform the instructor in writing from a reputable source.
- g. ***Stay awake during class.***

Appearance

- a. ***No hats or other head gear*** are to be worn in the classroom, or in any office or place of business you are invited to enter. Wearing hats or other head gear indoors is considered professionally inappropriate. If you have a medical condition or religious imperative that requires keeping your head covered, let the instructor know in writing from a reputable source.
- b. ***Dress in an appropriate fashion.*** Clean and neat clothes are recommended for the classroom and field. Remember your hardhat and other safety equipment.
- c. ***Clean the mud from your boots*** before entering the building after being in the field.
- d. ***Clothing with inappropriate logos or wording***--including those that relate to the Summer Field Program are discouraged. In addition, any attire that is offensive to any person or group in the classroom does not demonstrate good professional judgment.

Respect for Others

- a. ***Forestry is a profession*** that requires working with people of all ages, backgrounds, education, and demeanors. Professional success depends on finding ways to work cooperatively with others.
- b. ***Do not discriminate*** against, mock, or ridicule fellow classmates because of physical handicaps, accents, or gender, race, or religion. People are different. Respect, enjoy, and learn from diversity.
- c. ***Be courteous, respectful, and professional*** to your fellow students and the instructor at all times.
- d. ***Do not disturb others during lectures.*** Disruptive behavior is rude and disrespectful to your classmates and the instructor.

3. CONSEQUENCES:

Consequences for inappropriate behavior or appearance may vary depending on the nature of the incident. Failure to adhere to any of the above items may result in the student being dismissed from class by the professor, instructor, or teaching assistant as allowed under Student Affairs OP 91.10. Readmission to the class will be contingent on the outcome of a meeting with the professor or instructor in charge of the course. The meeting will take place within two days of the infraction. Other consequences may include a loss of points for an assignment or a course grade reduction, as specified in the course syllabus.

Consequences may be life long including the distrust and disrespect of your peers and indifferent recommendations from faculty. Forestry is a small profession and reputation matters!

Please see: http://www.msstate.edu/web/student_policies.html for additional guidance on appropriate conduct.

Last revised and approved by the faculty on December 15, 2008.