F321 - FOREST BIOMETRY

INSTRUCTOR: Robin M. Reich

OFFICE: 124 Forestry Phone: 491-6980 e-mail: *robin@cnr.colostate.edu*

OFFICE HOURS: MWF 7:30 - 9:30, 11:00-12:00; TR 8:00 - 9:00, or by appointment

TEXTBOOKS: Forest Measurements, Avery and Burkhart (5th Edition)

LECTURES: 10:00 - 10:50 a.m. MW 107 Forestry
12:10 - 1:00 p.m. MW 106 Natural Resources

LAB: 9:00-10:45 a.m. F 2 Education

OBJECTIVES: Provide the student with the basic foundations of measurement principles applicable to any forest measurement problem. The main emphasis of the course will be on the basic concepts of determining the volume of logs, trees, and stands of trees through measurements, estimation and sampling of the forest resource base. Unequal probability sampling will also be addressed as it relates to estimating the volume of standing trees.

LECTURES

I. Tree and Log Measurements
- Basic tree measurements
- Log scales (Doyle, Scribner, International)
- Cubic foot log scales
- Cordwood
- Weight scaling
- Measurement unit conversion
- Measurement unit relation to cost and values

II. Height Accumulation

III. Growth
- Individual tree growth
- Stand growth

IV. Probability Sampling
- Introduction to sampling theory
- Equal probability sampling (simple random sampling, stratified, cluster sampling, ratio and regression estimators)
- Unequal probability sampling (3P sampling, list sampling

V Other topics

FIELD TRIPS

There will be 2 to 3 Saturday field trips. The field trips will emphasize the practical aspects of designing and implementing forest inventories. The field trips are **MANDATORY** and are tentatively scheduled for September 11, 2004, October 9, 2004, and November 6, 2004. Transportation for the field trips will be provided and will leave at 7:30 a.m. from the parking lot in front of Forestry Building.

LABORATORY

The lab will be used to analyze data from the field trips and provide an exposure to material discussed in class. Laboratory topics include: introduction to basic statistics, sampling, basic tree measurements, volume table construction, log scaling, geometric log form, cubic versus Scribner cost and value, height accumulation, fixed area sampling, and unequal probability sampling.

QUIZZES

Performance in the class will be based primarily on weekly quizzes (12-14). The quizzes will be given during the first 15 minutes of class on Monday (except holidays). The quizzes will cover material from the previous weeks lecture, laboratory and reading assignment. Students will be allowed to drop the lowest quiz in computing their grade.

GRADING

Quizzes	50%
Final Exam (not optional)	10%
Lab Assignments	30%
Field trips	10%

Final grades will be based on total points acquired: A - 90% to 100%, B - 80% to 89%, C - 70% to 79%, D - 60% to 69%, F - less than 60%

Cheating (which includes, but not limited to copying off classmates tests, lab assignments, homework, etc.) will result in a failing grade for the course. Students are encouraged to **DO THEIR OWN WORK!**