

Forest Resource Measurements - NRM 352
Western Carolina University

“A nation without children would face a hopeless future; a country without trees is almost as helpless.”
Theodore Roosevelt (1858-1919), 26th President of the United States

Fall 2013

Lectures: Monday and Wednesday 9:05-9:55 AM 425 Stillwell

Labs: Tuesday 1:30 to 3:20 PM 143 Stillwell

Professor: Brian Kloeppe, 110C Cordelia Camp Building, bkloeppe@wcu.edu, 828-227-3173
Office Hours: Monday 10:00-11:00 AM, Wednesday 8:00-9:00 AM, and by appointment

I. Rationale/Purpose

The purpose of this course is to become familiar and confident with the use of basic forest measurements and apply them to:

- Forest land areas including compass and map skills and basic surveying methods
- Individual tree measurements, including diameter, height, and analysis of tree products, units of measure, and measurement techniques
- Timber volumes in forest tracts including basic timber cruising methods

II. Course Aims and Objectives:

- Aims: The aims of this course are to introduce, discuss, utilize, evaluate, and predict the measurement of land area, trees, biomass volume, timber volume, and specialty products
- *By the end of this course, students will:*
 - Understand the value and intensity of land survey and tree and forest biometry measurements
 - Understand tree and forest measurement techniques, their appropriate use, and bias
 - Know and recommend forest sampling strategies and the appropriate settings to employ them
 - Know and appreciate the need to succinctly summarize and present the findings from a forest inventory and analysis
- Demonstrate an excitement of learning, understanding, and appreciating the need for accurate and precise land and tree measurements.

III. Course Resources

- Required text: Forest Measurements, 5th edition. 2002. By Thomas E. Avery and Harold E. Burkhart. McGraw- Hill, Boston, Massachusetts. ISBN 978-0-07-366176-6.
- I will have two additional resources that I require each student to purchase. I have purchased these in advance and will collect payment from each of you for a total of \$10.50.
 - North Carolina Forester's Field Handbook 2004 edition: \$7.50 each
 - Biltmore Stick: \$3.00 each
- Lectures, labs, quizzes, and exams will frequently require the use of a calculator. NRCM classes restrict the use of a calculator to a TI-30X-IIS model. This is the same model used in NRM 210 and in NRM 451 so if you do not have one, you may wish to invest in one.
- I will post additional resources to the course blackboard page as the semester goes on. Please learn how to access these resources.

IV. Faculty Expectations of Students/Course Policies

- **Statement on Accommodations for students with disabilities:**

Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities and/or medical conditions. Students who require reasonable accommodations must identify themselves as having a disability and/or medical

condition and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact the Office of Disability Services for more information at (828) 227-3886. You may also visit the office's website: disability.wcu.edu

- **Statement on Academic Integrity (including plagiarism):**

- **Academic Honesty Policy**

Western Carolina University, as a community of scholarship, is also a community of honor. Faculty, staff, administrators, and students work together to achieve the highest standards of honesty and integrity. Academic dishonesty is a serious offense at Western Carolina University because it threatens the quality of scholarship and defrauds those who depend on knowledge and integrity. Academic dishonesty includes:

- a. **Cheating**—Intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- b. **Fabrication**—Intentional falsification of information or citation in an academic exercise.
- c. **Plagiarism**—Intentionally or knowingly representing the words or ideas of someone else as one's own in an academic exercise.
- d. **Facilitation of Academic Dishonesty**—Intentionally or knowingly helping or attempting to help someone else to commit an act of academic dishonesty, such as knowingly allowing another to copy information during an examination or other academic exercise.

Instructors have the right to determine the appropriate sanction or sanctions for academic dishonesty within their courses up to and including a final grade of "F" in the course. Within 5 calendar days of the event the instructor will inform his/her department head, and the Associate Dean of the Graduate School when the student is a graduate student, in writing of the academic dishonesty charge and sanction.

Please refer to the student handbook regarding the policies and consequences of academic honesty at Western Carolina University.

- **Statement on late and/or makeup assignments**

Each day that laboratory summaries are late will result in a reduction of 50% per day. Lab summaries that are more than two days late will automatically receive a zero. Exams can only be made up if I am contacted at least the day before the exam (before 4 PM) and the student has a legitimate excuse for missing the exam.

- **Statement of expectations for attendance and participation**

I expect students to be in class on time and actively participating in discussions and activities. I may call on you to offer an answer, your opinion, or some insight. If you are doing a group or in-class exercise and someone is not participating in the work, please let me know so that we can make sure that everyone is doing their share to meet the stated learning goals.

- **Statement of classroom behavior**

Please put away your cell phones. We want to create an environment of mutual respect where students can feel able to contribute and learn. I will frequently be surveying the class for opinions, options, and biases regarding forest measurements. It is important that we respect the opinions of all and that we value the diversity of a range of opinions when discussing forest measurements. Anything that distracts us from this goal is not acceptable and will be discussed with the offending student(s).

- **Statement of weather policy**

If the University closes for inclement weather, class will be canceled. If there is another reason to cancel class, then I will notify everyone by catamount email.

V. Grading Procedures:

Weekly quizzes are used to encourage students to keep up with the material. They will concentrate on material covered in the readings and during recent lectures and lab periods. Quizzes will start promptly at the beginning of class every Monday and will last approximately 10 minutes. I will drop the two lowest quiz scores over the course. There will be no make-up quizzes for any reason.

Lab exercises are intended to demonstrate and reinforce the concepts discussed in class. Labs will be conducted both inside and outside. In some cases it will be necessary for students to drive short distances off campus. Note that while much of the lab work will be done in teams, as a rule, each individual must submit their own *original* lab report.

Description of Item	Percentage of Grade
Exam I	15%
Exam II	15%
Labs	30%
Quizzes, Class Participation	20%
Final Exam	20%
Total	100%

Letter grades will be assigned according to the following:

Percentage Grade	Letter
90-100	A
80-89	B
70-79	C
60-69	D
59 and lower	F

Plus (+) and minus (-) grades will be assigned to the highest and lowest two points of each grade category (e.g. 99 and 100 = A+, 90 and 91 = A-, 88 and 89 = B+, 80 and 81 = B-, etc.). The grades of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D- and F indicate gradations in quality from Excellent to Failure. Please note that a C- grade is less than satisfactory and may not meet particular program and/or course requirements.

Composition-Condition Marks. A student whose written work in any course fails to meet acceptable standards will be assigned a composition-condition (CC) mark by the instructor on the final grade report. All undergraduates who receive two CC grades prior to the semester in which they complete 110 hours at Western Carolina University are so notified by the registrar and are required to pass English 300 or English 401 before they will be eligible for graduation. This course must be taken within two semesters of receiving the second CC and must be passed with a grade of C (2.0) or better.

VI. Course Evaluations:

- Online course evaluations for this course will be tentatively be open from 11 November 2013 to 06 December 2013. Please note that these dates are frequently updated during the semester.

VII. Tentative Course Schedule

May change to accommodate schedules, weather due to outdoor labs, and student needs

*Please note that on Saturday, 09 November, we will have a **mandatory** field day. In exchange for the time for this lab from 9 AM to approximately 3 PM, we will not have labs the last three weeks of class.*

Day / Date	Lecture Topic	Reading	Lab on Tuesdays
M, 19 August	introduction, abbreviations	1-1 to 1-7; 2-1 to 2-2	Lab #1 - distance
W, 21 August	Distance	4-1 to 4-5	
M, 26 August	Direction	4-6 to 4-9	Lab #2 - direction
W, 28 August	“ “		
M, 02 September	Labor Day - no class		Lab #3 - slope
W, 04 September	area determination	4-10 to -13, 4-16 to -23	
M, 09 September	GPS	4-24 to 4-29	Lab #4 - GPS
W, 11 September	“ “		
M, 16 September	measuring trees: diameter	7-1 to 7-6	Lab #5 - tree diam. & BA
W, 18 September	Exam 1		
M, 23 September	measuring trees: height	7-7 to 7-11	Lab #6 - tree height
W, 25 September	measuring trees: form & age	7-12 to 7-21	
M, 30 September	units of measure	5-1 to 5-12	Lab #7 - log volume
W, 02 October	tree volume and weight	8-1 to 8-3	T & S Hardwoods, tent.
M, 07 October	fall break - no class		fall break - no lab
W, 09 October	fall break - no class		
M, 14 October	tree grading and products	6-17 to 6-30	Lab #8 - tree grading
W, 16 October	fixed area sampling	10-1 and 10-6 to 10-11	
M, 21 October	point sampling	11-1 to 11-27	Lab #9 - point sampling
W, 23 October	point sampling		
M, 28 October	allometry	Martin et al. 1998	Advising Day - no lab
W, 30 October	Exam 2		
M, 04 November	sampling designs	3-4 to 3-11	Lab #10 - sampling design
W, 06 November	“ “		Saturday 09 November
M, 11 November	timber inventories	9-1 to 9-11	Lab - summary of 09 Nov
W, 13 November	“ “		
M, 18 November	statistical introduction	2-5 to 2-17	no lab
W, 20 November	Thanksgiving - no class		
M, 25 November	stand and stock tables	9-11 (again)	no lab
W, 37 November	sampling and estimation	3-1 to 3-3	
M, 02 December	student choice lecture	to be determined	no lab
W, 04 December	review for final exam		

Lab reports will be due *at the beginning* of lecture on Wed., 8 days following the lab on Tues.
Final Exam: Tuesday, 10 December 2013, 8:30 - 11:00 am