NREM 3102

FOREST MEASUREMENTS II

COURSE SYLLABUS

INSTRUCTOR: Dr. Thomas B. Lynch

OFFICE HOURS: I am available most of the time although I do need time to prepare for lectures and field exercises. If you have questions concerning the material it is best to ask prior to 10 PM.


PERSONAL EQUIPMENT: Calculator: you will need a hand-held calculator for tests and assignments. One that has a "statistical package" (can input data and calculate the mean and standard deviation) is desirable. New batteries would also be a good idea.

Compass: you will need a liquid-damped hand-held compass. The Silva Ranger (Type 15) or the Suunto (MC-1) are highly recommended and can be easily purchased.

Metal Sheetholder: a metal sheetholder with a clip and a metal cover is recommended. A vinyl-covered clipboard may also be used if it will provide protection for data sheets on rainy days. It must be capable of holding 8-1/2" by 11" paper.

Approved Hard Hat: you are required to wear your hard hat in the woods at all times for safety. Your hat should have a suspension saddle and be capable of meeting a severe blow to the head. Plastic "bump caps" are not acceptable.

Boots: you are required to wear lace-up boots in the woods for safety. It is best to have two pair since we will work in the rain. Be sure to waterproof your boots prior to camp.

Other items: engineer's scale (units are inches and tenths), metric scale (plastic is OK), 30-60-90 degree triangle, ship's curve (or French curve or flex-curve), protractor, bow compass, and 10-15 sheets of graph paper (10x10 to the square inch).
GRADES: Attendance is required at all class meetings.

There will be several required papers which must be submitted to the instructor. Some will be developed on an individual basis, others will be done on a crew basis. These assignments will be graded, with grades based on individual performance or on crew performance.

- Assignments submitted Late will be severely penalized: if they are submitted after the “due time” but not more than 24 hours late, 50% of the grade will be deducted as a penalty. Assignments will not be accepted after 24 hours beyond the “due time”. Each “due time” will be clearly stated when the assignment is given out.

- Some assignments will be given a final grade after review by the instructor.

- Some assignments will be given an initial grade after review by the instructor. If this grade reflects work that is inadequately completed, the students will have the chance to resubmit a corrected version of the exercise. This will allow students to regain some (not all) of the points lost during the initial review.

Exams: There will be two (2) exams, one each week during the measurements section of Camp. Note: the first exam will be given on Friday afternoon at the end of the first week; the second exam will be given on Friday afternoon at the end of week #2. Exams will cover the material from the preceding week.

Quizzes: Quizzes are an important component of the course and students should expect a quiz each morning at 8:00. These will generally consist of 3 questions involving the material that is currently under discussion. There will be no quizzes on exam days.

Grade Computation

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>25%</td>
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<tr>
<td>Exam 2</td>
<td>25%</td>
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<tr>
<td>Quiz. Ave.</td>
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<td>Lab Ave.</td>
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Final course grades will be based on the following guidelines:

- **A** = 90.0 - 100.0
- **B** = 80.0 - 89.9
- **C** = 70.0 - 79.9
- **D** = 60.0 - 69.9
- **F** < 60.0

However, the instructor reserves the option to look for "natural breaks" in the grade distribution when assigning the final letter grades. Students should be aware that the quality of their written assignments and their conduct (professional attitude) during the field exercises will be considered for grade determination.

**Academics at Camp:** Academically, you are considered to be an official part of Oklahoma State University. This course will have all of the academic rigor and standards of a junior-level course on the OSU campus. The course is intense and fast-paced; you will not be able to relax the first week and expect to catch up later.

**SCHEDULE:** Daily sessions will begin at 8 AM **sharp** in either the classroom or in the field. Class attendance is required at all sessions. You can check the posted calendar to see the topic for the day. While the majority of our exercises will be conducted *in the field*, it will be necessary to provide instructions in the theory and methods *in the classroom*.

In accordance with the needs of different portions of the course, lecturing may occur in the morning at 8 AM, in the woods, or in the evening. Due to the flexible nature of the course, you need to be alert to the daily schedule.

**Night work:** Completion of assignments in this course will require considerable night work; this may be in excess of what some of you are accustomed to doing. Summer Camp is an intensive part of your education in the profession of forestry. The calculations and writing associated with the exercises are an important part of your education.

**CREWS:** Our work will be done in three (3) or four (4) person crews. Crew make up may vary for different summer camp exercises.
Each crew will have a daily crew chief; a different person will be chief on a rotating basis. Crew chiefs may be required to meet with the instructor in the evening and report the results of the meeting to their crews. The crew chief is responsible for knowing the work plan for the next day, for seeing that the crew is in the right place each day with the correct tools, to see that everyone has the chance to perform each activity, to know the transportation plans, and to make decisions in case of disagreements among crew members.

**Note:** Crews must stay together in the woods. It is better to have a *lost crew* than to have students separately lost.

**COURSE OBJECTIVES:** You will:

- be introduced to the basic principles and techniques of forest measurements, emphasizing timber related systems;

- complete the course with an ability to care for and use the basic tools of forest measurements with a level of precision satisfactory for good performance in an entry-level job in the profession of forestry;

- develop a proficiency with the use of map, compass, pacing, and chaining and GPS that will enable you to travel in the woods knowing "where you are";

- learn to use several different systems of measurements to measure forest products including trees, logs and pulpwood;

- learn to design and perform a cruise to determine the volume and value of a forest stand;

- learn to use data derived from cruising to develop stand and stock tables and have the ability to interpret them;

- learn to choose from among several forest sampling systems to meet a forest measurement objective;

- learn to apply basic statistical principals (learned in your statistics class) to the design and evaluation of forest inventories;
- be able to evaluate your perceptions concerning the profession of forestry and the reality of working in the woods.

**SPECIAL NOTES:**

Dr. Lynch has the responsibility of presenting lectures, overseeing the field exercises and designing the quizzes and exams. He will also grade all exams.
NREM 3102
FOREST MEASUREMENTS II
COURSE OUTLINE

During the first several exercises of the course you will be exposed to the basic principles of forest mensuration. These will include measurement systems, land measurement, individual tree measurements (linear, areal and cubic), sampling theory and methods of selecting sample trees. You will gain extensive experience in individual tree measurements.

The remaining exercises will involve synthesis and application of these ideas to the measurement of volume, growth, and density of forest stands. Such measurements are basic to the practice of forest management. Recommendations regarding the management of a forest stand cannot be made without knowledge of its current state, that is, a forest inventory.

TOPICS AND ASSIGNMENTS

WEEK #1

<table>
<thead>
<tr>
<th>Introduction</th>
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<tbody>
<tr>
<td>Land Measurements &amp; GPS</td>
<td>Chapter 4</td>
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<tr>
<td>Plots</td>
<td>Chapter 10</td>
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<tr>
<td>Points</td>
<td>Chapter 11</td>
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<td>3P Sampling</td>
<td>Chapter 12</td>
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WEEK #2

<table>
<thead>
<tr>
<th>Sampling Designs</th>
<th>Chapter 3</th>
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<tr>
<td>Forest Inventory</td>
<td>Chapter 9</td>
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<td>Log Rules &amp; Scaling</td>
<td>Chapter 6</td>
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# NREM 3102 Forest Measurements II – OSU Forestry Summer Camp 2014

## Course Schedule

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<tr>
<th>Sunday</th>
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<th>Wednesday</th>
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<tr>
<td></td>
<td>COMPASS AND PACING</td>
<td>GPS</td>
<td>FIXED-RADIUS PLOT</td>
<td>POINT SAMPLING</td>
<td>POINT 3P SAMPLING</td>
<td>AFTERNOON EXAM #1</td>
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<tr>
<td></td>
<td>BIG CRUISE FIELDWORK</td>
<td>21</td>
<td>BIG CRUISE REPORT</td>
<td>LOG SCALING</td>
<td>HORIZONTAL LINE SAMPLE</td>
<td>AFTERNOON EXAM #2</td>
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