SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: FOREST MENSURATION

Code No.: NRT119 **Semester:** I

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Author: BOB CURRELL

Date: SEPT 98 **Previous Outline Date:** NEW

Approved: _____ A^c^ir ^9f8
Dean, Natural Resources Programs **Date**

Total Credits: 3 **Prerequisite(s):** None
Length of Course: 3 hrs/week X 16 weeks
Total Credit Hours: 48

FOREST MENSU1L\TI0N NRTl 19-;

COURSE NAME CODE NO.

I. COURSE DESCRIPTION:

_Xhis js a fpundatipjial_course,^y technjques and instruments used in various field measurements. Background theory is reinforced with a high component of outdoor practice in measuring distance, direction, tree heights, diameters and ages. Acquired skills will have direct application in many of the forestry courses that follows.

n. LEARNING **OUTCOMES:**

A. Learning Outcomes and elements of the Performance:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Use a diameter tape, calipers and a 30 m tape to measure tree diameters with 5% accuracy.

   Potential elements of the performance:

   - identify the proper way to use a diameter tape
   - identify different types of calipers and demonstrate how to use them correctly
   - define and locate dbh on a tree
   - correctly use the dot tally system

   This learning outcome will constitute 20% of the course's grade,

2. Determine tree age though the use of an increment borer.

   Potential elements of the performance:

   - understand how a tree grows and forms annual grovs^h rings
   - calculate tree age by counting annual rings and adding additional years
   - identify and assemble the components of an increment borer
   - recognize and avoid carrying out practices which can damage increment borers
   - be able to clean and maintain an increment borer

   This learning outcome will constitute 20% of the course's grade.

3. Use hypsometers including a Haga and Suunto to measure tree heights within 3% accuracy.

Potential elements of the performance:

- define total height and merchantable height
- describe hypsometers and explain the geometric and trigonometric principles they use
- be able to apply the mathematics of Cosine and Sine rules
- accurately measure distances from trees at which to measure their heights
- correctly and using the appropriate scale, observe and record tree heights using hypsometers

This learning outcome will constitute 20% of the course's grade.

4. Observe and record tree heights using a range pole and a 30m or 50m tape.

Potential elements of the performance:

accurately measure distances'on 30 or 50m tapes
hold the pole in the correct position for height measurement

This learning outcome will constitute 10% of the course's grade.

Maintain and properly care for all equipment handled in this course.

Potential elements of the performance:

- know how to properly wind a 30 and 50m rope onto a spool
- understand how to carry height poles, increment borers, hypsometers and other measurement equipment

This learning outcome will constitute 10%. of the course's grade.

6. Carry out a strip cruising exercise.

Potential elements of the performance;

- accurately compass along a predetermined bearing
- measure tree diameters on a strip of predetermined width
- measure representative tree heights
- record tally accurately and completely

This learning outcome will constitute 20% of the course's grade.

in. TOPICS:

¥ * Note: These topics sometimes overiap several areas of skill development and are not necessarily intended to be explored in isolated learning units or in the order below**

1. Introduction to Forest Measurement

2. Measuring Tree diameter
   - how a tree grows in diameter
   - measuring diameter
   - calipers, diameter tapes
   - dot tally system of recording diameter
   - using diameter classes

3. Measuring Tree Age
   - how a tree grows in age (annual rings)
   - methods of measuring tree age
   - using increment borers

4. Measuring Tree Height
   - how a tree grows in height
   - methods of measuring height
   - geometric and trigonometric principles used in tree height measurement
   - field use of Haga and Suunto hypsometers
   - height measurement of small trees using height poles

5. Introduction to Timber Cruising
   - principles of forest inventories
   - canying out a strip cruise

TV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Forest Mensuration (NRT119) Study Guide
2. Silva Ranger or Suunto MC-1 compass

V. EVALUATION PROCESS/GRADING SYSTEM:

Evaluation will be based on weekly quizzes and/or weekly lab assignments. Two tests will be held to evaluate students' knowledge of the principles of forest measurement. 5% of the mark will be assigned for demonstrated proper use and care of equipment throughout the semester.

METHOD OF ASSESSMENT (GRADING METHODS)

Quizzes	**10%**
Assignments	**45%**
Tests (2)	**40%**
Equipment Use	5%
	100%

A passing grade for this course is 60%. Quizzes are given at the beginning of classes and students who are late will forfeit the quiz mark. Field assignments must have a passing grade of 60%/

NOTE: STUDENTS MAY BE ASSIGNED AN "R" grade early in the course for unsatisfactory performance.

VI. SPECIAL NOTES:

Special Needs

If you are a student with special needs (eg. Physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room El204, Ext. 493, 717 or 491 so that support services can be arranged for you.

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Plagiarism

Students should refer to the definition of "academic dishonesty" in the "Statement of Students Rights and Responsibilities."

Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course, as may be decided by the professor.

In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced and to credit the author of the material, it is the policy *of* the department to employ a documentation format for referencing source material.

Advanced Standing

Students who have completed an equivalent post-secondary course should bring relevant documents to the Coordinator, Natural Resources Programs,

Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in gaining advanced standing at other post-secondan^' institutions.

Substitute course information is available at the Registrar's Office.

Vn. **PRIOR LEARNING** ASSESSMENT:

Please contact the Prior Learning Assessment Office (E2203) for further information.