

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON

COURSE OUTLINE

COURSE TITLE: FOREST RENEWAL

CODE NO.: FOR241-4

SEMESTER: IV

PROGRAM: FORESTRY/RENEWABLE RESOURCE TECHNICIAN

AUTHOR: MARK HARVEY

DATE: JANUARY 1996

PREVIOUS OUTLINE DATED: NOV 94

APPROVED: \_\_\_\_\_

DEAN

Jan 2, 1996  
DATE

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TOTAL CREDITS 64

PREREQUISITE(S): NIL

**I. PHILOSOPHY/GOALS:**

This course is largely a companion course to Silviculture FOR200. It deals primarily with the regeneration and management of Ontario's forests. Emphasis is placed on planning and carrying out forest renewal operations in a safe and ecologically responsible manner. Students are also given the background required to understand the biological relationships found in landscapes where trees make up a dominant component of the ecosystem. Sustainability of the forest resource both biologically, socially and economically is stressed throughout.

**II. STUDENT PERFORMANCE OBJECTIVES (OUTCOMES):**

Upon successful completion of this course the student will:

- 1) Be able to participate effectively in carrying out silvicultural operations.
- 2) Be able to plan silvicultural operations.
- 3) Be competent to train unskilled silvicultural work crews.
- 4) Be able to identify the ecological and economic significance of applying a variety of silvicultural options.

**III. TOPICS TO BE COVERED:**

- 1) Seeds and Seeding
- 2) Forest Tending
- 3) Forest Tree Nurseries
- 4) Tree Planting
- 5) Tree Improvement

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IV. LEARNING ACTIVITIES/REQUIRED RESOURCES:

- 1) Topic/Unit - Seeds and Seeding
  - Tree seed collection
  - Tree seed forecasting
  - Insect pests of cones and seeds
  - Identification of seeds of important commercial tree species
  - Seed germination biology
  - Seed bed characteristics
  - Direct seeding methods including aerial and ground seeding
  - Natural seeding techniques
  - Seed Zones
  
- 2) Topic/Unit - Forest Tending
  - Juvenile spacing
  - Precommercial and commercial thinning
  - Silvics of major competitors to crop trees
  - Characteristics and use of herbicides registered for use in forestry in Canada
  - Aerial and ground herbicide application equipment
  - Crop planning
  
- 3) Topic/Unit - Forest Tree Nurseries
  - Types of nursery stock production systems including bareroot, greenhouse accelerated transplants and greenhouse container stock
  - Stock types
  - Overwinter storage
  - Transportation and handling of nursery stock
  - Stock quality assessments
  
- 4) Topic/Unit - Tree Planting
  - Selecting planting stock for specific sites
  - Advantages and disadvantages of planting versus other regeneration options
  - Caring for planting stock at the planting site
  - Microsite selection
  - Spacing
  - Planting tools
  - Planting faults
  - Tree planting assessment techniques
  - Tree plant contracting

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IV. LEARNING ACTIVITIES/REQUIRED RESOURCES: (continued)

5) Topic/Unit - Tree Improvement

- Genetics of tree improvement
- Genealogy of important forest tree species in Ontario
- Seed zones
- Seed collection areas
- Tree selection plus Scion selection
- Grafting
- Seed orchard design establishment and management
- Family test evaluation
- The genetic heritage of Ontario's forests
- Biotechnology and tree improvement

V. EVALUATION METHODS:

Assignment - The Natural and Artificial Regeneration of an Assigned Species 15%

Tests 35%  
 Test #1 15%  
 Test #2 20%

Quiz Seeds 5%

Labs 45%  
 Seeding Report 5%  
 Seed Extraction and Germination 5%  
 Tree Crop 10%  
 Crop Plan 5%  
 Seed and Cone Insects 5%  
 Nursery Stock Assessment 5%  
 Treeplanting Assignment 5%  
 Forest Renewal Calculations 5%

100%

90 - 100% A+  
 80 - 89% A  
 70 - 79% B  
 60 - 69% C  
 Less than 60% R

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V. **EVALUATION METHODS:** (cont'd)

Late assignments may not be accepted.  
Late assignments accepted will be marked down.

Students must attend 80% of both lecture classes and labs to receive a C grade or better. Students who miss more than 6 classes may receive an R grade.

VI. **PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor.

VII. **REQUIRED STUDENT RESOURCES:**

Forest Renewal Study Guide and Lab Manual

Turgeon, J.J. and DeGroot P. 1994. Management of Insect Pests of Cones in Seed Orchards in Eastern Canada. OMNR/Forestry Canada, Sault Ste. Marie, Ontario. Queen's Printer 98 p.

VIII. **ADDITIONAL RESOURCE MATERIAL AVAILABLE IN THE COLLEGE LIBRARY:**

Periodical Section

Silviculture Magazine

Forestry Chronicle

IX. **SPECIAL NOTES:**

Students with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

