

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: FOREST PATHOLOGY

CODE NO. : NRT2060 **SEMESTER:** IV

PROGRAM: FORESTRY TECHNICIAN

AUTHOR: Mark Crofts

DATE: Dec. 2002 **PREVIOUS OUTLINE DATED:** Jan. 02

APPROVED:

DEAN

DATE

TOTAL CREDITS: 2

PREREQUISITE(S): NONE

LENGTH OF COURSE: 2 hr/week
x16 Weeks **TOTAL CREDIT HOURS:** 32

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For additional information, please contact the Dean,
Natural Resources Programs.

Course Name

Code No.**I. COURSE DESCRIPTION:**

This course provides students with an understanding of how various stresses affect normal growth and development of trees; introduces particular diseases which impact on tree health and wood quality and provides skills in recognizing signs and symptoms of pathological conditions. The ecological and economic impacts of various “introduced” pathogens will be investigated and discussed.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Describe the anatomy, function and inter-relationships of specified structures in a healthy tree.Potential Elements of the Performance:

- Recognize cells and tissues of leaves, stems and roots that are commonly affected by disease and properly label diagrams drawn from microscopic examination.
- Trace the movement of water from soil to atmosphere through the various cells and tissues involved and describe factors affecting that movement.
- Explain the role of the various plant structures and tissues in photosynthesis, growth, winter hardening processes and compartmentalization.

These outcomes will constitute approximately 10% of the course.

2. Demonstrate proper use of important terminology.Potential Elements of the Performance:

- define terms such as pathology, pathogen, vector, host, signs, symptoms, disease, infectious, non-infectious, necrotic, hypertrophic, atrophic and decline.
- using appropriate Forest Plant Biology terminology in presentations and technical reports

These outcomes will constitute approximately 10% of the course.

3. Demonstrate an understanding of the significance of various abiotic factors in relation to tree health.

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Potential Elements of the Performance:

- describe the affects of temperature extremes
- describe the affects of nutrient deficiencies
- describe the affects of soil moisture extremes
- describe the affects of soil compaction and other soil disturbances
- describe the affects of atmospheric pollutants

These outcomes will constitute approximately 30% of the course

4. Demonstrate an understanding of the significance of various biotic factors in relation to tree health.

Potential Elements of the Performance:

- give examples of detrimental nematodes, viruses, mycoplasma, bacteria, parasitic flowering plants and fungi.
- describe the life cycles and signs and symptoms, and control methodologies of select species which are representative of mycorrhizal associations, foiar diseases, rusts, cankers, vascular wilts, wood decays, wood stains, root, seedling and decline diseases.
- name and discuss the ecological and economic impacts of various “introduced” pathogens

These outcomes will constitute approximately 30% of the course

5. Demonstrate the application of pathological studies in a field setting.

Potential Elements of the Performance:

- identify 20 species of disease causing fungi
- recognize and document signs and symptoms of biotic and abiotic stress
- conduct a field survey of tree health and wood condition and prepare a technical report to analyze and describe the results
- present a collection 10 fungi associated with trees

These outcomes will constitute approximately 20% of the course

III. TOPICS:

1. Structure and function of a healthy tree.

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2. The scope of pathology.
3. Abiotic stresses of trees.
4. Biotic stresses of trees.
5. Disease life cycles.
6. Assessment and management of pathological conditions.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Forest Pathology Readings Package, Sault College bookstore

V. EVALUATION PROCESS/GRADING SYSTEM:

Theory tests (1x10%, 1x20%)	30%
Identification test	10%
Field study and report	10%
Collection	10%
Presentations (2x15%)	30%
<u>Lab assignments</u>	<u>10%</u>
TOTAL	100%

Late submissions of lab assignments and reports will be devalued at a rate of 10% per day for a period of 5 days after the due date. After 5 days the lab assignment/report value will be zero.

All labs/assignments/reports/collections must be submitted regardless of lateness to pass the course.

Failure to attend a test without medical or severe personal reasons will result in a zero and no opportunity to make up the test will be offered.

Course re-writes are not offered.

The following semester grades will be assigned to students in postsecondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00

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A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies & Procedures Manual – Deferred Grades and Make-up</i>).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has been impossible for the faculty member to report grades.	

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:

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

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Plagiarism

Students should refer to the definition of “academic dishonesty” in *Student 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.

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

Health and Safety

Field activities in rough terrain and in inclement weather are inherently physically demanding. Students must wear appropriate safety gear and carry appropriate survival gear during field operations (eye, hearing, head, foot protection) and dress appropriately for the weather. Snowshoes are mandatory.

Attendance

Attendance at labs, lectures and field trips is important. There is a great deal of effort in planning, scheduling, budgeting, etc. involved in all aspects of the course. **ATTENDANCE AND PARTICIPATION IN FIELD LABS ARE REQUIRED IN ORDER TO RECEIVE A GRADE FOR THE FIELD LAB ASSIGNMENTS** unless there are exceptional circumstances.

A trip schedule will be provided to students at the beginning of the semester.

Notetaking

While the course texts are a significant source of information for the course, they are not the only source. Students must take notes summarizing additional material that is presented in class. All material is valid test material.

Class Conduct

Classes will be conducted in the same manner as would a meeting in the work place. Eating is not permitted, except for light snacks during group work or study periods.

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Code No.**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the following:

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.