

**THE SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY****SAULT STE. MARIE, ONTARIO****Course Outline**

<b>COURSE TITLE:</b>	Forest Pathology - Theory	
<b>PROGRAMS:</b>	Forestry Technician, Aboriginal Resource Technician	
<b>AUTHOR:</b>	B. Beggs	
<b>CODE NO.</b>	OEL 842	
<b>SEMESTER:</b>		
<b>DATE:</b>	January/03	
<b>APPROVED:</b>	<hr/> <b>DEAN</b>	<hr/> <b>DATE</b>
<b>PREREQUISITES:</b>	None	
<b>TOTAL CREDITS:</b>	1 credit	
<b>TOTAL CREDIT HOURS:</b>	16 hours	
<b>COURSE DURATION:</b>	1 hr/week	

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*Dean, Continuous Learning*

*(705)759-2554, Ext. 445*

## **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 the theory for recognizing signs and symptoms of pathological conditions.

## **II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

1. Explain the role of forest pathology and describe the anatomy, function and inter-relationships of specified structures in a healthy tree.

### **Potential Elements of Performance:**

- Define the term forest pathology.
- Describe the importance of forest pathology with regards to forest ecosystem health and forest structure in general.
- Explain the importance of forest pathology to the forest products industry.
- Describe the basic cell and tissue structures and their functions in a healthy tree, with particular emphasis on photosynthesis and cell growth.
- Trace the movement of water from soil to leaves through the various cells and tissues involved.

2. Define and describe forest pathology basic terms and concepts.

**Potential Elements of Performance:**

- Characterize a healthy tree.
  - Define the scope of forest pathology as a science.
  - Define terms: pathology, pathogen, disease, necrotic, hypertrophy, atrophy and chlorosis.
  - Differentiate between disease and injury.
  - Describe the general characteristics of abiotic, biotic and decline diseases.
  - Define terms: vector, host, disease, injury, infectious, abiotic, biotic, decline.
3. Demonstrate an understanding of the significance of various abiotic factors in relation to tree health.

**Potential Elements of Performance:**

- Describe the affects of temperature extremes.
- Describe the affects of soil moisture extremes.
- Describe the affects of nutrient deficiencies.
- Describe the affects of soil compaction and other soil disturbances.
- Describe the affects of atmospheric pollutants.
- Describe the affects of mechanical damages (wind, snow, ice, hail, lightning, animal, sun, human).

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

**Potential Elements of Performance:**

- Give examples of detrimental nematodes, viruses, mycoplasma, bacteria, parasitic flowering plants and fungi.
  - Describe the disease development and signs and symptoms, and control methodologies of select species which are representative of foliar diseases, rusts, cankers, vascular wilts, wood decays, wood stains and root diseases.
  - Describe the benefits of mycorrhizal associations.
5. Demonstrate an understanding of the significance of decline disease factors in relation to tree health.

**Potential Elements of Performance:**

- Define the term decline disease and describe the *controversy* surrounding this subject.
- Describe the Three Factors Model associated with decline disease.
- Describe the disease development, signs and symptoms and control methodology for maple decline.

**III. TOPICS:**

1. Structure and function of a healthy tree.
2. The scope of pathology.
3. Abiotic stresses of trees.
4. Biotic stresses of trees.
5. Decline Disease

#### **IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

- Tree Disease Concepts by Paul D. Manion, 2nd Edition, 1991 Prentice Hall Career and Technology ISBN: 0-13-929423-6

#### **V. EVALUATION PROCESS/GRADING SYSTEM:**

1 Research Project (emailed) to professor/facilitator - **15%**

1 Mid-Term Exam (on-line) - **35%**

1 Final Exam (proctored and on-line) - **50%**

**TOTAL = 100%**

#### **VI. SPECIAL NOTES:**

1. If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), please identify your needs to the tutor and/or the Centre for Students with Disabilities at your registering college.

2. It is the responsibility of the student to retain all course outlines for possible future use for transfer of credit to other postsecondary institutions.

3. Course Outline Amendments: 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.

