



VANCOUVER ISLAND  
UNIVERSITY

SCIENCE & TECHNOLOGY

FORESTRY

## Forest Resources Technology Program FRST 351 - Forest Pathology Course Outline

Term: Fall  
Lecture/Lab: TBA

Instructor: TBA

- Bachelor of Science
- Bachelor of Science in Fisheries & Aquaculture
- Bachelor of Natural Resource Protection
- Bachelor of Arts

### COURSE INTRODUCTION

An introduction to the major forest tree diseases in B.C., including life cycles, damage, identification, and control methods. This includes coverage of fungal pathogens, parasitic plants, wildlife, and climatic disorders. The detection, assessment and treatment of significant pests within these groups are covered in detail. Prerequisite knowledge of forest ecology, plant physiology and dendrology is an asset. This course focuses on the significant disease agents in the forests of BC.

### COURSE FORMAT (3:0:1)

Learning will be accomplished through a variety of activities, including

- attending lectures
- in-class discussions
- online discussions (D2L)
- ID & diagnostic exercises
- field trips
- reading assignments

### TEXTS & SUPPLIES

- Van der Kamp, B. 1998. *Forestry 309 Forest Pathology*. UBC Access Guided Independent Study. ([online](#))
- Henigman, J. et al. 2001. *Field Guide to Forest Damage in BC*. Second edition. Joint Publ. No. 17. ([online](#), optional sign-out)

stem rust on pine



<http://www.for.gov.bc.ca/hfp/publications/00198/index.htm>

### SCOPE AND CREDIT

This 3 credit course is accepted towards the following:

- Forestry Technology Diploma

dwarf mistletoe brooms



<http://www.for.gov.bc.ca/hfp/publications/00198/index.htm>

## LEARNING OUTCOMES

### Course Specific Outcomes

Upon successful completion of the course, the student will:

1. **Assess the potential hazards** of working in the forest; demonstrate safe work procedures for carrying out tasks, and use appropriate personal protective equipment requirements and describe emergency procedures.
2. Define and use **technical terms** applicable to forest pathology in conversation with peers and in technical reports.
3. Recognize the presence of disease in forest trees and **identify the causal agent** based on the presence of signs; utilize expert systems to **diagnose possible causal agents** based on observed symptoms.
4. Name and rank the **most significant pathogens** for the important conifers of BC.
5. Describe the role of **pathogens** in forest ecosystems.
6. Describe the **potential impact of pathogens** as they relate to various forest management objectives.
7. Describe how forest pathogens are addressed in **forest assessments** (e.g. site plans, stand management prescriptions, timber cruising and silviculture surveys).
8. Describe how important forest tree **diseases develop** over the life of a stand.
9. Develop **effective management options** that are environmentally safe and economically feasible, given a stand/disease situation, for the major pathogens listed below:
  - **Root Disease** (Phellinus, Armillaria, Tomentosus, Annosus, Black Stain, Rhizina)
  - **Dwarf Mistletoes** (Hw, Pl, Lw & Fd)
  - **Stem Rusts** (white pine blister rust, western gall rust, comandra and stalactiform stem rusts)
  - **Wilts & Cankers** (Atropellis, Dutch elm disease)
  - **Wood Decay**

Armillaria root disease



<http://www.for.gov.bc.ca/hfp/publications/00198/index.htm>

## Broad Level Outcomes

In addition to the subject-specific learning outcomes listed above, broad-based program learning outcomes will be covered. Upon successful completion of this course students will have furthered their ability to:

1. **Analyze information and think critically** (i.e. consider the life requirements of pathogens, their potential impact on management objectives, and determine viable treatment options).
2. **Utilize digital resources** to effectively search for information, diagnose forest health problems and create a common learning resource.
3. **Read, comprehend and summarize** material appropriate to the field of forestry - specifically forest health.
4. **Work collaboratively** with others - specifically to utilize a wiki to "write collaboratively" with classmates to create articles and participate in online discussions.

(Dutch elm disease)



<http://crawford.tardigrade.net/bugs/figures/elm.jpg>

Iceman (Oetzi) conks



[http://www.sierrapotomac.org/W\\_Needham/BirchPolypore\\_100206R.htm](http://www.sierrapotomac.org/W_Needham/BirchPolypore_100206R.htm)

## SAMPLE EVALUATION\*

10%	Disease Collection
15%	Wiki Assignment
15%	Quizzes
15%	Midterm
10%	ID/ Diagnostics Test
25%	Final
10%	Professionalism

Quizzes will consist of short answer questions that will cover recent lecture material, reading assignments and/or identification of specimens. Any missed exams or quizzes will receive a grade of zero.

Professionalism will primarily consider in-class and online participation, as well as general preparedness for class.

\* Evaluation break-out is subject to change.

## ACADEMIC POLICIES

For details regarding academic policies and grade break-out refer to the [Forestry Portal](#).

SAMPLE SCHEDULE - subject to change

Week		
1	<b>No Class - Ecosystem Course</b>	Course Intro <i>*Online &amp; F-2-F Discussions</i> Introduction to forest health
2	<i>*Tree Doctor overview</i> Dwarf mistletoes - biology	<i>*The Wiki</i> Dwarf mistletoes -management
3	<b>Field Trip - forest pathology</b>	<i>*Online Reference Sources</i> Basic fungus biology
4	<b>Forestry 101</b> FRST 291 - Interior field trip	<b>No Class</b> FRST 291- Interior field trip
5	Wood Decay	Wood Decay Root diseases - Overview
6	<i>*Course Feedback</i> Root Disease - Phellinus	<i>*Self-Assessment</i> Root diseases - Armillaria
7	<b>No Class</b> <b>FRST 235 Field Trip: MASS</b>	<b>Midterm</b>
8	<b>Field Trip: forest pathology</b>	Root diseases - tomentosus, annosum, schweinitzii, black stain
9	Stem rusts - basic biology, western gall rust	Stem rusts - comandra, stalactiform & broom rusts
10	White pine blister rust	<i>*Diagnosis: digital and otherwise</i> White pine blister rust
11	<b>Holiday - Remembrance Day</b>	Foliar & Seedling diseases
12	Wilts & Cankers	Abiotic & Declines & Wildlife
13	Abiotic & Declines & Wildlife	<i>*Course &amp; Self-Assessment</i> Review - Pathological Thinking
Dec Study Days Final exam dates to Dec - do NOT book any vacation time		