# Course Outline Form: Fall 2015

## General Information

**Course Title:** ENVS\*3250 Forest Health and Disease

**Course Description:** ENVS\*3250 Forest Health and Disease F(2-2) [0.50]. The impact of beneficial and pathogenic microorganisms on forest health, and the biology and management of tree diseases in natural and urban ecosystems is covered in this course. Emphasis will be placed on ecological processes, host-pathogen interactions, mutualistic associations, wood decay, and human impacts on tree health.

**Credit Weight:** 0.50

**Academic Department (or campus):** School of Environmental Sciences

**Campus:** Guelph

**Semester Offering:** F15

**Class Schedule and Location:**

Lectures: Graham Hall 3308, Mondays & Wednesday 9:30-10:20

Lab: Graham Hall 3309, Thursday 3:30-5:20

## Instructor Information

Instructor Name: T. Hsiang

Instructor Email: thsiang@uoguelph.ca

Office location and office hours: Bovey 3227

## GTA Information

GTA Name: TBA

GTA Email: TBA

GTA office location and office hours: TBA

## Course Content

### Specific Learning Outcomes:

This course examines the concept of forest health, especially the impact of tree diseases. The interactions of trees with micro-organisms such as fungi which cause diseases or decay wood, as well as beneficial interactions involving mycorrhizae and endophytes are discussed. While there is an emphasis on forest trees, urban and shade trees are also discussed. In addition to specifically addressing the University Learning Objectives of literacy, numeracy, depth and breadth of understanding, and love of learning, students will be expected to achieve the following learning objectives:

1) to describe and recognize the major biotic factors associated with tree health and diseases, especially of Ontario trees, some of which will be encountered during the six walks during the laboratory periods

2) to identify the impact of forest fungi and tree diseases on forest health by describing the extent of damage associated with major tree diseases and the role of symbiotic organisms in promoting forest health

3) to demonstrate the ability to find and critically evaluate recent primary research articles on a forest health issue, and to write a literature review integrating the information using appropriate scientific language

4) to effectively communicate ideas and information by giving a short presentation on the Literature Review by highlighting and explaining interesting and significant research findings

5) to demonstrate personal and professional integrity by respecting diverse points of view, in class and in the field of forest health by realizing and appreciating the utilitarian and ecological points of view for forest health management

### Lecture Content:

● The concept of Forest Health &Tree Health: a "healthy amount of disease" in the forest

● The natural role of diseases in forest renewal cycles & wood decay fungi

● Historical impacts of tree diseases

● Basic Plant Pathology (disease triangle, disease cycles)

● Organisms which cause Plant Diseases

● Parasitic plants: Dwarf Mistletoes

● Bacteria: Phytoplasmas and Wetwood

● Rusts (white pine blister rust & other rusts)

● Conifer foliar diseases: needle casts, Diplodia

● Hardwood foliar diseases: Anthracnoses, tar spot

● Vascular wilts & stains: Dutch elm disease, Oak Wilt

● Cankers: Butternut canker, Hypoxylon, blackknot

● Trunk rots, heart rots, butt rots

● Root rots: Armillaria root rot, Annosus root rot,

● Greenhouse & nursery diseases

● Abiotic diseases: physiological, air pollution, acid rain, soil conditions, forest decline

● Management of Forest Diseases: fungicides, cultural

● Guest lecture on Ontario Forest Health

● Endophytes, mutualistic fungi

● The role of fungi in Forest Health

### Labs:

● Gordon Street West walk around outside

● Arboretum walk around

● QUIZ in lab, then groups of pathogens & diagnosing plant diseases

● QUIZ in lab, then Dairy Bush walk around

● QUIZ in lab, then rust diseases, diplodia, tarspot

● MIDTERM (20%) in lab

● Preservation Park walk around

● Arboretum Nature Reserve walk around

● QUIZ in lab then cankers, wilts, wood rots

● QUIZ in lab, then Student Presentations

### Seminars:

### Course Assignments and Tests:

| **Assignment or Test** | **Due Date** | **Contribution to Final Mark (%)** | **Learning Outcomes Assessed** |
| --- | --- | --- | --- |
| **Lab Quizzes** | **Weeks 3,4,5,9,10 in lab** | **20%** | **1,2** |
| **Midterm** | **Week 6, Oct 15 in lab** | **25%** | **1,2** |
| **Term Paper** | **Oct 5, 5pm topic due**  **Nov 2, 5pm paper due** | **15%** | **3** |
| **Student Presentation** | **Weeks 10, 11, 12 in lab** | **10%** | **4,5** |
| **Final Exam** | **Tues., Dec. 8** | **30%** | **1,2,5** |

### Final examination date and time: Tuesday, December 8, 08:30am – 10:30am

### Final exam weighting: 30%

## Course Resources

### Required Texts:

1) Field Guide to Tree Diseases of Ontario. 1997. C. Davis & T. Meyer.

<http://cfs.nrcan.gc.ca/pubwarehouse/pdfs/9531.pdf> (Free PDF - 170Mb!)

2) Diseases of Canada's Forests

<https://tidcf.nrcan.gc.ca/en/diseases/all> (Free access)

3) Field Guide to the Common Diseases and Insect Pests of Oregon & Washington Conifers

<https://archive.org/details/fieldguidetocomm0106gohe> (Free PDF - 35 Mb)

### Lab Manual: None

### Other Resources: see Courselink

### Field Trips: Walks around campus, no fees

### Additional Costs: None

## Course Policies

### Grading Policies: Please advise the instructor of examination conflicts as soon as possible. If you have an illness or other problem, please see your program counselor and ask them to issue a notice to instructors. There are no make-up opportunities for lab quizzes or the midterm, but academic consideration (such as transfer of marks to the final exam) may be given with appropriate supporting documentation. Penalties on late submission of term paper assignments are stated above.

### Course Policy on Group Work:

Group work for marked assignments is not permitted.

### Course Policy regarding use of electronic devices and recording of lectures:

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the written permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

## University Policies

### Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml).

### Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml).

### Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website (http://www.uoguelph.ca/csd/)](http://www.uoguelph.ca/csd/).

### Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](https://courseeval.uoguelph.ca/) **for more information.**

### Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III (Schedule of Dates) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/).

## Additional Course Information