

ENVS*3250 - Forest Health and Disease

Fall 2023 Course Outline

Section: 01

Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

Calendar Description

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.

Prerequisite(s): 1 of BOT*2100, ENVB*2030, ENVS*2040, ENVS*2330

Department(s): School of Environmental Sciences

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.

Lecture Schedule

MonWed 9:30am-10:20am in GRHM*3308 (9/7 to 12/15)

Lab Sections

Day	Time	Location
Thu	9:30-11:20	Graham Hall 3309

Instructor Information

Dr. T. Hsiang, PhD

Professor

Email: thsiang@uoguelph.ca

Office: Bovey 3227

Fall 2023 Office Hours:

arrange by email

Office Phone: x52753

Learning Resources

Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors/>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by the

Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons/>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

Course Learning Outcomes

1. 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 and during laboratory periods (both simulated for fall 2020)
2. 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. 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. Effectively communicate ideas and information by giving a short presentation on the Literature Review by highlighting and explaining interesting and significant research findings
5. 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
6. 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 and during laboratory periods
7. 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
8. 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
9. effectively communicate ideas and information by giving a short presentation on the Literature Review by highlighting and explaining interesting and significant research findings
10. 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 and Lab Topics

Lectures

- 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 lectures 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 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
- Student Presentations for last 2 weeks

Assessment Breakdown

Description	Weighting (%)	Due Date
Lab Quizzes	20%	Weekly at start of lab
Midterm	25%	October 12, in lab period
Term Paper	10%	Sept 30, 5 pm, topic due (electronic) Oct 28, 5pm, paper due (hardcopy & electronic)
Student Presentation	10%	Weeks 10, 11 and 12 in lab
Final Exam	35%	to be announced

Assessment Details

Quizzes

Lab Quizzes

Course Learning Outcomes Assessed: 1, 2

20

Exam

Midterm

Course Learning Outcomes Assessed: 1, 2

25

Paper

Term Paper

Course Learning Outcomes Assessed: 3

10

Presentation

Student Presentation

Course Learning Outcomes Assessed: 4

10

Exam

Final Exam

Course Learning Outcomes Assessed: 1, 2, 5

35

Final Exam

Date: Dec 13

Time: Wed 8:30am-10:30am

Location: TBA *Please see Web Advisor closer to the date of scheduled final for location.*

To understand rules and regulations regarding Examinations students are encouraged to read Student's Responsibilities (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>)

If the student is unable to meet the final exam requirements due to medical, psychological or compassionate circumstances they are encouraged to review Student's Responsibilities in the Academic Consideration, Appeals and Petitions (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>) section of the Academic Calendar.

Grading Schemes

Lab Quizzes (20%)

lab quizzes at the start of most indoor labs (10 min).

Term Paper Topic Description (0%)

- Due: End of Week 5, Friday, 5pm by email. Involves Review of Research Article (more details will be given in class and on course website).
- Select a primary research article from the prescribed list of journals dealing with Forest or Tree Disease from 2023
- Submit a topic summary paragraph with at least five recent journal reference articles by the due date
- Penalty of 5% per day of the term paper mark for late submissions

In Person Midterm Exam (25%)

- Oct 12, In Lab, covers material in lectures and labs

Term Paper (10%)

End of Week 9, Friday, 5pm by email

Review of Research Article - 10% penalty on term paper mark per day late. This is a required assignment

Student Presentations (10%)

Weeks 10, 11, 12, In Lab - presentation given to class based on term paper; sign-up schedule will be circulated for presentation slot selection

In Person Final Exam (35%)

- date & time to be announced
- cumulative, but based more on material since midterm

Additional Notes

- There are no make-up quizzes or alternate times for midterm, but academic consideration may be given with acceptable documentation. For illnesses or family emergencies, please see your Program Counsellor and ask them to issue a note to your Instructors detailing the dates affected. A possible scenario if granted academic consideration is shifting missed quiz or midterm weight to final exam
- The term paper topic description incurs a 5% per day penalty if not submitted by due date
- The term paper incurs a 10% per day penalty if not submitted by due date
- SAS Memory Aids need instructor approval by 5 working days before the exam
- As a courtesy to the instructor, if you are making use of SAS test writing services, please let the instructor know at least a week ahead of the test

Last Day to Drop Course

The deadline to drop Fall 2023 courses without academic penalty is the last day of classes: December 01

After this deadline, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

Standard Statements for Undergraduate Courses

Academic Integrity

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.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>) is outlined in the Undergraduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability. Use of the SAS Exam Centre requires students to make a booking at least 10 days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodations of Religious Obligations (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>).

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all undergraduate students except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in the Undergraduate Calendar - Dropping Courses (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources (<https://wellness.uoguelph.ca/shine-this-year/>). The Student Wellness team are here to help and welcome the opportunity to connect with you.

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Recording of Materials

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

Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for Academic Consideration. (<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>)