

Forest Protection

Instructor:	Dr. Jess Hartshorn	Course:	FOR 4130/6130
Office:	Online (Canvas)	Lecture:	TR 11:00 – 12:15
E-mail:	jhartsh@clermson.edu	Lab:	R 2:00 – 5:00
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Course Description

Forest health is integral to all stages of forest succession from germination/planting to harvest. It also encompasses beneficial and negative effects of biotic (living) and abiotic (non-living) components of the forest, interactions among these factors, and management. Throughout your career you will encounter issues in forest health and it is necessary to understand the biology, ecology, and management of these issues.

Course Objectives

1. Identify patterns common to certain forest health issues,
2. Describe the components of forest health and how to identify problems,
3. Identify commonly encountered disturbances of southeastern trees,
4. Communicate to a wide range of audiences about the biology, ecology, and management of forest pests (via a group project).

Optional Textbooks (available FREE online)

The North Carolina Forest Service Forest Health Handbook, 3rd ed, 2013.

Major Forest Insect and Disease Conditions in the United States, FS-1093, 2015.

A Field Guide for the Identification of Invasive Plants in Southern Forests, GTR-SRS-119, 2010.

Grading System

Scale		Weight	
A	>90%	Exams	50%
B	80-89%	Group project	10%
C	70-79%	iNaturalist project	20%
D	60-69%	Lab assignments	10%
F	<59%	Participation	10%

Group Projects

At the beginning of the semester, you will be broken into small groups (4-5 people) who will work to develop a 15 minute presentation (plus 5 minutes for questions). Projects can be in the form of one of the following:

1. Formal lecture presentation
2. Educational video
3. Informational flyer or pamphlet
4. Educational web page

Other forms of presentations may be allowed upon approval.

iNaturalist Collection

Each student will create an iNaturalist account and “collect” organisms throughout the semester. You can visit iNaturalist.org and/or download the iNaturalist app on your phone. Once you create an account, share your username on the discussion thread so I, and classmates, can follow your collection. Individuals can follow other people in class (to do this you need to visit the website on your laptop or computer) and help with identification. Collection criteria are included on a separate sheet that will be posted on Canvas. Inappropriate usernames will not be allowed on the project and will receive a 0 for the project.

Participation

You are expected to participate in lecture and lab. Group projects will incorporate a peer-review process where you will be “graded” by your other group members based on your contribution to the project/collection. Lecture participation and attendance will be assessed by interactive Kahoot! quizzes, paper attendance sheets, or other forms of in-class participation (e.g. short group discussions).

Canvas

Course materials (except PowerPoints) will be available on Canvas. This includes: rubrics for group projects and the collection, syllabus, grades, review information etc.

Labs

All lab information will be posted on Canvas – here are brief descriptions of individual labs:

- iNaturalist: Together we will watch the iNaturalist videos about creating an account; you will create your iNat account, be added to the class project, and we will discuss the expectations for your “collections”.
- Soil and water: Watch the short video on Canvas about collecting soil and water samples for analysis; visit the two pre-marked sites in the Experimental Forest and collect a soil sample and a water sample; submit your samples to the Ag Services Lab (see map). Submit a screenshot or PDF of your results along with a paragraph write-up of “next steps” towards managing each spot.
- Invasive Plants: Make a 4-5 minute extension style video on an invasive plant; compose a tweet about this invasive plant as well and include a link to your group’s video in the tweet.

- Pest diagnostics: visit the pre-marked site in the experimental forest and assess any signs or symptoms of pest damage. Collect materials that you will submit to the Plant Pest Disease Lab for identification of your organism. There will likely be multiple things here so choose whichever one looks most interesting to you (but only choose one!)
- SPB risk assessment: Watch the video on Canvas about assessing stands for southern pine beetle risk; using the assessment tool online, visit the two pre-marked stands in the Experimental Forest and determine their risk of SPB outbreak.
- Urban tree health (Dr. Kevin Chase, Bartlett Tree Labs):

Graduate Credit

To receive graduate credit, students are required to complete an additional component of the iNaturalist project. You will work together to survey residential areas for non-native species, taking inventory of non-native plants in landscape situations. This work will culminate in a region-wide survey that will be publishable either as a short communication or a note in a small journal. Changes to the project can be discussed with Dr. Hartshorn and updated as is necessary. A final report in publication format will be due by the end of the business day on Friday the final week of class.

Tentative Schedule

Week	Tuesday	Thursday	Lab
8/17	-	Intro, Expectations	Lab 1: iNaturalist
8/24	Components of forest health	Tree physiology and forest health	
8/31	Forest health patterns	Field methods	Lab 2: Soil/water
9/7	Abiotic issues	Abiotic issues	-
9/14	Invasive plants	Invasive plants	Lab 3: Invasive plants
9/21	Non-insect animals	*Non-insect animals	-
9/28	Review	Exam 1	Lab 4: Assessing forest health
10/5	Insect pests	Insect pests	-
10/12	Insect pests	*Pathogens	Lab 5: SPB risk assessment
10/19	Pathogens	Insect/Pathogen interactions	-
10/26	Review	Exam 2	No Lab
11/2	Fall Break	Fall Break	-
11/9	Urban tree health	*Plant breeding, GM	Lab 6: Urban tree health (Dr. Kevin Chase)*
11/16	Climate change	Final review	-
11/23	Thanksgiving Break	Thanksgiving Break	-
11/30	Group presentations	Group presentations	-
12/7	Final Exam: TBD		-

*Indicates guest lecture/lab

University Policies

Statement of Academic Integrity

Academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. When, in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty, including a description of the misconduct, to the Associate Dean for Curriculum in the Office of Undergraduate Studies. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.

Statement of Accessibility

Students who experience a barrier to full access to this class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by [email](#), or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen if at all possible, but there could be a significant wait due to scheduled appointments. Students who receive Academic Access Letters are strongly encouraged to request, obtain and present these to their professors as early in the semester as possible so that accommodations can be made in a timely manner. It is the student's responsibility to follow this process each semester. You can access further information [here](#).

Sexual Harassment Statement

Clemson University is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran's status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by [Title IX of the Education Amendments of 1972](#). Mr. Jerry Knighton is the Clemson University Title IX Coordinator. He also is the Director of Access and Equity. His office is located at 110 Holtzendorff Hall, 864.656.3184 (voice) or 864.656.0899 (TDD).

University Attendance Policy

The academic resources of Clemson University are provided for the intellectual growth and development of students. Class attendance is critical to the educational process; therefore, students should attend scheduled courses regularly if they are to attain their academic goals. Students with excessive absences may need academic or medical assistance. Please report instances to the Dean of Students' Office, 656-0935.

In the event of an emergency, the student should make direct contact with the course instructor, preferably before a class or an exam takes place. Students should speak with their course instructors regarding any scheduled absence as soon as possible and develop a plan for any make-up work. It is the student's responsibility to secure documentation of emergencies, if required. A student with an excessive number of absences may be withdrawn at the discretion

of the course instructor. Course instructors must implement fair grading procedures and provide an opportunity to make up missed assignments and examinations that does not unfairly penalize the student when an excused absence is accepted. Such make-up work shall be at the same level of difficulty with the missed assignment or examination. Course instructors shall hold all students with excused absences to the same standard for making up missed assignments and examinations. While course instructors should seek to make reasonable accommodations for a student involved in University-sponsored activities, students should understand that not every course can accommodate absences and that absences do not lessen the need to meet all course objectives. Absence from class is detrimental to the learning process, so course instructors may use reasonable academic penalties which reflect the importance of work missed because of unexcused absences. Course instructors who penalize students for unexcused absences must specify attendance requirements as related to grading in the course syllabus and must keep accurate attendance records. Course instructors are obligated to honor exceptions to the university attendance policy for students covered by the Americans with Disabilities Act, as verified through paperwork issued by Student Accessibility Services.

Notification of Absence

The Notification of Absence module in Canvas allows students to quickly notify instructors (via an email) of an absence from class and provides for the following categories: court attendance, death of family member, illness, illness of family member, injury, military duty, religious observance, scheduled surgery, university function, unscheduled hospitalization, other anticipated absence, or other unanticipated absence. The notification form requires a brief explanation, dates and times. Based on the dates and times indicated, instructors are automatically selected, but students may decide which instructors will receive the notification. This does not serve as an “excuse” from class, and students are encouraged to discuss the absence with their instructors, as the instructor is the only person who can excuse an absence. If a student is unable to report the absence by computer, he/she may call the Dean of Students Office for assistance. The Dean of Students Office also assists students in identifying appropriate methods of documenting absences and assists families in using the electronic Notification of Absence system when students are unable to do so themselves.

Inclement Weather Policy

Exams that were scheduled at the time of a class cancellation due to inclement weather will be given at the next class meeting unless contacted by the instructor. Assignments due at the time of a class cancellation due to inclement weather will be due at the next class meeting unless contacted by the instructor. Postponement of assignments or exams must be granted by the instructor via email or Canvas within 24 hours of the weather-related cancellation.