Forestry 3313 – Forest insects and Diseases

Syllabus and Policy Statements- Fall 2020

Instructor: Dr. David L. Kulhavy, Laurence C. Walker Distinguished Professor
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Office Hours: Tu: 9:30-11:00, 3-4 pm; Th: 9:30-11:00, 3-4 pm; M 9-10; W 9-10, 2-3
Class Time: 11:00-11:50 Tuesday & Thursday, lecture; laboratory 12:30 – 3:20 pm Tuesday. (For 205 will be used for review and indoor laboratories.)

Class will be by ZOOM: 94423937114 Password 786112 (I will send updates on this meeting code if needed). Laboratories will be either by Zoom or face to face. All outdoor laboratories will meet with social distance spacing and hard hats and face masks just off the Forestry deck on the north side of the Forestry building. Outdoor labs will meet at 1:00 pm for 30 minutes of preparatory time.

Course Description: 3 semester hours. Examination of the effects of forest insects and diseases on forest products, forest stand structure and function, and both economic and non-economic losses. Prerequisite: For. 209.

Program Learning Outcomes (This is not a General Education Course): Forestry 3313 is one of the forestry core courses required of all forestry majors and thus competency is required. A minimum grade of a “C” must be attained or the course will have to be repeated. The course is designed to address the following Program Learning Outcomes, as given in the BSF Program Matrix:

1. Demonstrate understanding and competency of forest ecology and biology;
2. Demonstrate understanding and competency in the measurement of forest resources;
3. Demonstrate understanding and competency in managing forest resources;
4. Demonstrate understanding and competency of forest resource policy, economics, and administration.
5. Demonstrate understanding and competency in oral and written communication skills.

The above PLOs are also recognized as vital components by the Society of American Foresters, the program’s accrediting agency.

|--------|-------------------------------|---------------------------------|---------------------------------|-------------------------------------------------|-------------------------------------|

B. S. Forestry Program Learning Objectives, Proficiency Levels
1. **A** – Advanced – FOR 313 supports Program Learning Outcome by providing students with transitional, high level topic-specific information, activities, and opportunities that enable the students to apply their critical thinking and tactical skills to resolved increasingly challenging strategic situations.

2. **I** – Intermediate – course supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.

**Forest Insects and Disease Power Point, Fall 2020**

*Virtual Power Point recorded onto Zoom for presentation as 6minute 40 second presentation of 20 slides of 20 seconds per slide (You can work with one other person on a 30 slide, 20 seconds per slide presentation.) These will be presented in class via Zoom.*

**Intended outcome:** Demonstrate effective oral presentation skills

<table>
<thead>
<tr>
<th>Performance Area</th>
<th>Exceeds Standard (1)</th>
<th>Meets Standard (2)</th>
<th>Standard Not Met (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Thoughts follow a logical sequence of the topic &amp; explanations are thorough, clear, &amp; concise.</td>
<td>Student follows a logical sequence, but elaboration &amp; explanations lack depth.</td>
<td>Presentation lacks logic &amp; there is little elaboration. Listeners have difficulty following presentation.</td>
</tr>
<tr>
<td>Eye contact &amp; Audience interaction</td>
<td>Presenter maintains eye contact with groups &amp; individuals when making presentation. Seldom looks down or refers to notes. Positive interaction with audience.</td>
<td>Presenter makes frequent eye contact with audience, but often looks off, down, or returns to notes. Interaction with audience is acceptable.</td>
<td>Presenter makes little eye contact, mostly at end of read statements. May look over or around individuals, failing to make eye contact. Interaction with audience needs improvement.</td>
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<tr>
<td>Delivery</td>
<td>Presenter speaks clearly &amp; with an effective use of volume changes to hold interest of audience. Uses accurate terminology, no acronyms, and effective gestures to add meaning &amp; emphasis.</td>
<td>Presenter speaks clearly. Audience has little difficulty hearing the presentation. Grammar &amp; terminology is acceptable. Use of acronyms is infrequent. Some use of gestures for emphasis.</td>
<td>Presenter’s voice is adequate but lacks volume &amp; change of pace for emphasis. There are terminology &amp; grammar errors. Acronym use is frequent. Speaker appears stilted during presentation.</td>
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**Grading Scale:** 9=A; 8=A-; 7=B+; 6=B; 5=C+; 4=C; 3=C-

**Student Learning Outcomes:** Upon successful completion of this course, the student will:
Understand basic forest insects and disease concepts & principles including ecology and impact (PLO #1 and 2);

Be able to make stand assessments and be able to analyze inventory data & project future forest conditions (PLO #1 & 2);

Be able to make stand and site prescriptions with specific multiple objectives & constraints and understand the consequences, including methods of establishing and influencing the composition, growth, & quality of forest stands (PLO #1 and 3);

Understand professional ethics, including SAF Code of Ethics, & recognition of ethical responsibility to adhere to those ethical standards in forestry decision making on behalf of clients & public (PLO #4); and

Have demonstrated competency in oral and written communication skills (PLO #5).

The Virtual BugDance will include one of the 26 forest insects (and bees) from Kulhavy and Jones, *A Forest Insect Alphabet*. You will record this on Zoom or other media and present to the class using the information on the forest insect and the music created for each of the insects.

For iNaturalist, you will record images or sounds for forest insects and diseases and post them on iNaturalist on the Forest Insects and Diseases Fall 2020 presentation. There needs to be a total of 50 entries (25 can be the same insect or disease; for example, 5 cicadas; 5 fire ant mounds, etc.). You will need to have your own log in name.

**Course Goals and Objectives:**
The goal of this course is to provide you with an understanding of forest insects and diseases and their role in modern forest management. This will be accomplished by explaining and demonstrating the relationship of insects and diseases with other sciences and by on-the-ground examination of actual stand conditions. We will demonstrate that most forest insects and diseases are natural processes, but can delay stand process for management for differing ownerships. It is also important to realize that it is essential that we wisely manage our forest resources if we are going to continue to be successful at maintaining a healthy lifestyle.

This course will build on the foundation you should have as the result of successful completion of Forestry 209 as a prerequisite for For. 313. The ability to understand and apply the techniques and principles presented in this class will be essential to your successful completion of several courses you will have to take in future semesters, i.e. Field Station, Forest Economics, and Management Plans. Forest Insects and Diseases is now incorporated into Forest Management Plans.

Additionally, I seek to enhance your basic intellectual competencies as defined by the State of Texas. State-mandated core curricula are predicated on the judgment that a
series of basic intellectual competencies – reading, writing, speaking, listening, critical thinking and computer literacy – are essential to the learning process in any discipline. Although this course is not part of the University General Education Core, you will enhance some of the defining characteristics of these basic intellectual competencies by completing this course. I commonly utilize PowerPoint to present the outline of the lecture. You will be given specific reading assignments (On-line, and from handouts); read these materials and utilize them to enhance your notes from class. I expect you to be ready to respond orally in class when questions are posed to you. Every lab is an exercise in critical thinking.

**Course Requirements:** FOR 313 utilizes hands-on learning in field practicums (labs) and lectures. As much as possible, lecture material will be enhanced by practical field exercises. However, some material may only be covered in lecture or in lab. You will have 10 papers in the course class (50 points each) (42%), and 10 50 point quizzes/field exercises (42%). You will have assignments from your field work in lab or from material covered in lecture. You will be required to give a timed (10 minute) oral presentation utilizing PowerPoint (50 points) (4%) during a lecture or laboratory period and a class presentation of a forest insect or disease (50 points) (4%). Class collection/pest leaflets 75 points (8%) or iNaturalist (50 entries in the Urban Forest entry).

**Grading:** Your final course grade is based on a total of the above points. I use a system of: > 89.99% = A; 80-89.99% = B; 70-79.99% = C; 60-69.99% = D; < 60% = F. I will also compute a class average and if warranted, a curve will be applied if the curve will result in a higher grade.

**Course Content and Laboratory Topics:**
Note: order of material will depend on available specimens
Forest Insects and Diseases is aimed at increasing an understanding of the role of forest management in reduction of potential pest species. Emphasis is placed on the interactions of the insect/ disease complex in a series of habitats and management areas including:

1) urban forestry using the Texas Shade Tree Evaluation Guide on the city of Nacogdoches trees and the DJI Phantom3 UAS and Resistograph for evaluation of trunk, crown structure, crown development, (5%);
2) assessment of oak wilt in Texas and Sudden Oak Death in California (5%); role of the citizen scientist;
3) the potential role of exotics, life histories and ecology, including Asian longhorn beetle, emerald ash borer, banded elm bark beetle, red-bay ambrosia beetle, sudden oak death, Asian gypsy moth, Asian dodder, Sirex woodwasp, Formosan termite, Hemlock woolly adelgid, thousands cankers disease and the relationship to APHIS, PPQ and USDA Forest Service, International trade (10%);
4) the role of agencies including universities, the Texas A & M Forest Service and the U. S. Dept. Agr., Forest Service, National Forest System, State and Private Forestry, Forest Health Protection, and Forest Insect and Disease Research (5%);
5) the interaction of insects, diseases and soils on the forest landscape including:
   a) the Texas leaf-cutting ant and fusiform rust on the Tonkawa and Osier soils on the Tonkawa (Campbell Global) ownership; impact on loblolly and slash pine (10%);
   b) the red-cockaded woodpecker habitat in a loblolly pine/shortleaf pine mature stand on soils with shrink-swell properties, with symptoms and signs of red heart and brown cubical butt rot (diseases), and gaps formed by *Ips* + black turpentine beetles, southern pine beetle, wind (hurricanes, straight line winds) and lightning (10%);
   c) Impact of Nantucket pine tip moth on intensively managed pine plantations using sequential sampling and whole tree sampling for population estimation (5%);
   d) Site/stand relationships of annosus root rot to soils and impact on pine management, bark beetles, drought (10%);
   e) Integration of field notes into GPS and GIS for management decisions using the city plantation for potential impact of Texas leaf-cutting ant, southern pine beetle hazard rating, emerald ash borer, monarch butterfly habitat, annosus root rot, brown cubical butt rot, field exam (5%)
   f) Forest ethics will be examined on decision making within forest management (5%)

6) Impact of growth and differentiation on forest insects and diseases and their ability to overcome host resistance (10%).

7) Communication of forest insects and diseases in iNaturalist, Instagram or Twitter for Citizen Scientist

7) Invasive species and Rapid Detection technology (Sirex woodwasp, emerald ash borer, sudden oak death, Asian longhorn beetle) (5%)

8) Impact of disease and decay on wood structure—Portable sawmill demonstration, termites (5%)

9) Forest insect and disease collection; 10 Orders, 40 Families, 50 Species properly curated; forest diseases, 15 specimens properly curated (10%) or project

10) Orders of Insects (Coleoptera, Orthoptera, Isoptera, Lepidoptera, Hymenoptera, Hemiptera) and Diseases based on impact on the host (roots, trunk, crown, growth)

10) Use of UAS in forest insect and disease detection, urban forest hazard rating, seeding mortality,

Papers and reports will be a combination of group projects and individual reports. A power point will be developed on an exotic forest insect or disease. A second power point will be developed on a program in Forest Entomology or Forest Pathology. A field final combining GIS and GPS will combine the areas of 1-6 above during the last scheduled laboratory. A written final will emphasize site/stand relationships for forest insects and diseases in management of forests.

For Honors contract credit, please contact me during the first two weeks of class.

**General Course Policies:**
**Attendance:** Attendance is mandatory for lecture and laboratory. The student is responsible for making the instructor aware of an excused absence. Each unexcused absence will result in a final total point reduction of five percent. Refer to the SFASU Policy Manual on the SFASU web-site for more information.

**Assignments and Grades:** There are 1250 points available in the course outlined above with written, oral and quiz grades. A Power-point presentation of the applied forest insect and disease application, 100 points.

**Other Policies:**

Withheld Grades Semester Grades Policy (A-54)
A grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances and is done at the discretion of the instructor of record with the approval of the academic chair/director. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Student Academic Dishonesty Policy (4.1)**
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism. **Definition of Academic Dishonesty:** Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at [http://www.sfasu.edu/policies/student_academic_dishonesty.pdf](http://www.sfasu.edu/policies/student_academic_dishonesty.pdf)

**Course Grades Policy (5.5)**
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. Please read the complete policy at [http://www.sfasu.edu/policies/5.5_course-grades.pdf](http://www.sfasu.edu/policies/5.5_course-grades.pdf)
Academic Accommodation for Students with Disabilities Policy (6.1)
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/

Responsible Use of Technology
It is expected that all students will only use cell phones, PDAs, laptop computers, MP3 players and other technology outside of class time or when appropriate in class. Answering a cell phone, texting, listening to music or using a laptop computer for matters unrelated to the course may be grounds for dismissal from class or other penalties.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. Please read the complete policy at http://www.sfasu.edu/policies/student-code-of-conduct_10.4.pdf

Miscellaneous Important Information:
Please come to each lab prepared to go to the field unless otherwise instructed. This means that you must have your hardhat, field clothes, and field boots. If you show up for lab wearing any type of athletic (tennis, basketball, running, whatever!) shoes or without your hardhat, then you will not be allowed to participate in the lab (can't get on the van!). You will be given a lot of handouts. Buy a 3-ring binder in which you should keep all handouts. Bring this binder with the handouts to each lecture and lab. No cell phone calls or text messaging in class.

Face masks and hardhats are required for all outdoor laboratories.