Syllabus
FOR 515/615: Tree Physiology

Instructor: Dr. Hans Williams, Dean and Professor of Forestry
Office: FO 101
Office Hours: Monday, Wednesday and Friday, 8:00 to 9:30 am and 4:00 to 5:00 pm;
By Appointment Preferred
Phone Number: 936-468-3304
Email: hwilliams@sfasu.edu

Meeting Times: Tuesday and Thursday, 8:00 to 9:15 am, Forestry Room 225.

Textbook: No required text. Journal Articles as assigned. Suggested References:


Course Description: The influence of environmental factors on physiological processes in woody plants. Environmental stress physiology will be emphasized.

Program Learning Outcomes:

<table>
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<tr>
<th>Course</th>
<th>PLO 1 Proficiency in Research Design</th>
<th>PLO2 Scientific Literature Review</th>
<th>PLO3 Proficiency in Basic Statistical Analysis</th>
<th>PLO4 Preparation for Pursuit in a Professional Career</th>
<th>PLO5 Competency in Oral and Written Communication Skills</th>
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</thead>
<tbody>
<tr>
<td>FOR 515/615</td>
<td>A</td>
<td>M</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Definition of Rating Categories:

1. N/A – Not Applicable – course does not support the Program Learning Outcome.

2. B – Basic – course supports Program Learning Outcome by providing students with fundamental information, definitions, concepts, and lab activities relative to the expected outcomes.

3. 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.
4. **A – Advanced** – course 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.

5. **M – Mastery** – course supports Program Learning Outcome by providing students with opportunities to independently apply tactical and strategic planning skills to successfully accomplish real-world, non-academic management objectives. Completes students’ preparedness for entry-level professional activity accomplishment.

**Student Learning Outcomes (Course Objectives):** The course will present information on how environmental factors influence the physiology of individual forest seedlings/trees. Lectures will be based on reviewing current research papers on the effects of light, temperature, nutrition, and pollution on physiological process in trees (PLO 2, PLO 4). Discussions of the research papers will include relevance of methodology for data collection (PLO 1, PLO 3, PLO 4). Students will prepare an oral and written presentation on an approved topic (PLO 5).

**Ph.D. Students:**
*If necessary, Ph.D. students should schedule a meeting with the instructor to discuss special course content deemed required to support their research.*

**Lecture Topics:**
- Summary of Tree Structure and Growth (3)
- The Nature of Stress Injury and Stress Resistance (4, 5)
- Photosynthesis and the Response of Photosynthesis to Environmental Factors (1, 2, 3, 5)
- Enzymes, Energetics and Respiration (3)
- Carbohydrates (3)
- Carbon Balance of Trees and Ecosystems (1)
- Temperature (2, 5)
- Mineral Nutrition (2, 3, 5)
- Soil Toxicity - Heavy Metals and Salt (2, 5)
- Hormones (3)

Lecture topics will be presented using formal lectures and during participation in a greenhouse experiment.

**Research Paper and Presentation:**

Each student will prepare a paper summarizing a specific woody plant physiology topic of their choice. Ideally, the topic chosen should relate to your MS/PhD research. The paper must be supported by a minimum of 10 refereed journal articles. **Internet sources will not be accepted.** Approval of your topic must be by February 13, 2020. Approval of the journal articles that you will summarize must occur by March 26, 2020. The paper and presentation will be due the week of April 27, 2020. Each student will prepare a Power-point presentation on their topic. The Power-point presentation will be 15 minutes in length.
Take-Home Exam:

Two, take-home exams will be assigned on March 9, 2017 and April 27, 2017. The exam questions will be based on papers and topics discussed during lecture. About two weeks will be given to complete the exams.

Greenhouse Experiment:

In addition to conventional lectures, some topics will be discussed while participating in a greenhouse experiment. Set-up and monitoring of the experiment will take place during scheduled lecture time. If necessary, students will be compensated for any time commitment to the experiment outside of the scheduled course time.

Ph.D. Students

Doctoral students will develop and deliver a 50-minute lecture on an ecophysiology topic of their choosing. The lecture will be delivered during a scheduled lecture period in the second half of the semester. The lecture topic must be approved by the instructor.

Attendance:

Attendance and participation in class discussions are mandatory. If a lecture is missed due to an excused absence (illness, family emergency, University-sponsored event), the student is responsible for notifying the instructor and providing proper documentation. For each unexcused absence, a one-half letter grade reduction from the final course grade will be assessed.

Course Grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Research Paper</td>
<td>100</td>
</tr>
<tr>
<td>Presentation</td>
<td>100</td>
</tr>
<tr>
<td>Take-home Exams</td>
<td>200</td>
</tr>
<tr>
<td>Greenhouse Experiment Participation</td>
<td>100</td>
</tr>
<tr>
<td>Ph.D. Student Lecture</td>
<td>100</td>
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Course Grade = (Total Points Earned/500 points)*100

-Doctoral students have 600 points available

Other Policies:

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 Code of Conduct, SFA 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.

**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 for matters unrelated to the course may be grounds for dismissal from class or other penalties.

**Cell phones (including text messaging):** The use of a cell phone, including text messaging, will not be tolerated in the classroom. Make sure that cell phones are turned-off and stowed before entering the classroom. If a cell phone rings during a lecture, or I observe the use of text messaging, I will deduct ten (10) points from the offending student's total point score for each occurrence.

**Cheating, Plagiarism, Unprofessional Behavior:** Cheating and Plagiarism will not be tolerated. The severest penalty (*F for the course*) will be awarded if caught cheating or plagiarizing. See SFA Policy 4.1: Student Academic Dishonesty for definitions and details.

**Learning Disability:** Persons who require special accommodations necessary to complete course requirements must first contact the Disability Services Office at 468-3004. Following notification from the Disability Services Office, all reasonable accommodations will be provided in order to assist the student in successfully completing the course.