

COURSE SYLLABUS
FOR 3523 - Tree Ecophysiology and Herbicides
Fall 2007

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Course Description:

3 credits: 2 hours lecture, one 3-hour laboratory

Prerequisites: BIOL 1143 and BIOL 1171 (General Botany and Lab)

Aspects of tree growth, development, and physiological processes as affected by the environment are discussed in the tree ecophysiology component of this course. Herbicide classification, application, safety, degradation, laws and regulations, and uses are topics covered in the herbicides section.

Course Objectives:

1. To understand the processes underlying tree growth.
2. To identify and describe both macroscale ecological relationships between and among biotic and abiotic components of forest ecosystems and microscale biological processes within woody perennials.
3. To understand and integrate “real world” applications of the principles taught in biology, botany, and soils.
4. To master information that will allow you to pass the Arkansas State Plant Board exam to receive an Arkansas Restricted Use Pesticide Applicator License to commercially apply forestry herbicides. (The Plant Board stresses knowledge of human safety & first aid, toxicity, labels, handling and mixing, storage, disposal, and spills.)
5. To compare and contrast the characteristics of various herbicides used to solve weed control problems in forestry situations.
6. To compare and contrast the various application technologies used in modern forestry herbicide application.
7. To identify the Trade and Common names of forestry herbicides commonly used in southern timber production.
8. To develop site specific recommendations to solve weed control problems in various forestry situations by identifying complementary chemicals and application scenarios that are economically feasible and environmentally suitable for specific landowners.

Specific Learning Objectives: See syllabus addendums distributed by each instructor.

Text: Kozlowski, T.T. and S.G. Pallardy. 1997. *Physiology of Woody Plants*, 2nd Edition. Academic Press, Inc.

Supplemental Texts:

Rengel, Z. 2002. *Handbook of Plant Growth- pH as the Master Variable*. Marcel Dekker, Inc.

Grading Policy: Grades will be based on the quality of material presented to the instructor, using the following point system:

<u>Herbicides</u>	<u>Points</u>	<u>Tree Ecophysiology</u>	<u>Points</u>
Two exams (@ 100 ea)	200	Two Exams (@ 100 ea)	200
Lab Examination	50	Lab Assignments	55
Herbicide Prescription	<u>50</u>	Exposition / Critical review	40
Sub-Total	300	Participation	<u>5</u>
		Sub-Total	300
Final Exam	100 (50pts each section)		

Your final grade will be based on 700 points. Final letter grades will be calculated using: 100-90% = A; 89-80% = B; 79-70% = C; 69-60% = D; 59% and below = F.

Final Exam:

Ecophysiology: Tuesday, October 16th ; 1:40-4:30pm (Final laboratory period)

Herbicides: Tuesday, December 6th ; 11:10-12:00pm (Final lecture period)

Make-up Exam: No make-up exam is offered for the ecophysiology section of this course. An exam day should be considered comparable to an important meeting as a professional. Preparation, punctuality, and participation are expected of employees during work/professional meetings. *With few exceptions, your top priority on exam day should be your exam, just as a presentation at a meeting would be your top priority on a given day of work.* One make-up exam will be given the last week of the semester, if necessary, in the herbicides section of this course. This exam is comprehensive and will be taken by all students who missed a regularly scheduled exam. If you expect to miss an exam you should let the instructor know ahead of time. If an emergency occurs, get word to us as soon as possible. Unexcused absences from exams are counted as a zero.

Other Information:

All work you turn in is to be your own. Cheating or sharing answers on exams or plagiarizing on papers is unprofessional and unethical. A first offense will result in a 0 grade for the exam or paper. A second offense will result in automatic failure of the course and a note to your permanent record. There is no appeal of these penalties, but our decisions can be appealed, in order, to the SFR Dean, the SFR Faculty-Student Relations Committee, and the UAM Student Equity and Grievance Committee.

Late Assignment Policy: All assignments with a specified due date will be treated with the instructor's late-assignment policy, which is:

1. Assignments handed in on or before the due date will be gladly accepted.
2. Assignments handed in up to **one week** past the due date will be accepted, with an automatic deduction of 10% per day for being late.
3. Assignments which are more than one week late **will not be accepted, and will be given a zero grade.**

UAM will no longer mail grade reports to all students. You may access your grades through Campus Connect on the UAM homepage, <http://www.uamont.edu/>. To have your grades mailed to you, complete the grade request form available in the Registrar's Office in Monticello or the Student Services offices in Crossett and McGehee.

Students with Disabilities:

It is the policy of the University of Arkansas at Monticello to accommodate individuals with disabilities pursuant to federal law and the University's commitment to equal educational opportunities. It is the responsibility of the student to inform the instructor of any necessary accommodations at the beginning of the course. Any student requiring accommodations should contact the Office of Special Student Services located in Harris Hall Room 120; phone 870 460-1026; TDD 870 460-1626; Fax 870 460-1926.

Cheating and Plagiarism Requirement

Cheating: The possession, receipt, use, buying or selling, or furnishing of unauthorized **help** while doing any of the following, but not limited to:

- assignments
- reports
- term papers
- quizzes
- tests
- providing answers
- homework (e.g., copying homework assignments and/or answers)
- use of pre-programmed calculators (e.g., formulas)

When in doubt about the acceptance of providing or getting help for the activities mentioned above, consult your instructor.

Plagiarism: The use of writings, concepts, or thoughts of **another**, which are specific information and not common knowledge, without acknowledging the source(s). As used above, **another** is any of the following, but not limited to:

- any person
- any text from a book, journal, magazine, or other printed material
- any electronic source (internet source, word document file, or any digital data)

Examples of common knowledge compared to specific information are:

- The sun will rise tomorrow is common knowledge.
- The sun will rise at 6:01 a.m. on 1 July 2004 (NWS 2003) is specific knowledge.
- Florida, as a retirement state, has a lot of older people is common knowledge.
- As of 2002, 2,854,838 people over the age of 65 lived in Florida (U.S. Census Bureau 2003) is specific knowledge.

Direct quotations should be indicated using quotation marks and proper acknowledgement of the source. Paraphrasing is the use of writings, concepts, or thoughts of another rephrased in your words that captures the meaning of the original author. Cite the source of paraphrases also.

Examples using quotations and paraphrasing:

The original text from Leopold (1933) reads: In hoofed mammals there is so far no visible evidence of

any density limit except the carrying capacity of food.

Correct direct quotation reads: “In hoofed mammals there is so far no visible evidence of any density limit except the carrying capacity of food.” (Leopold 1933)

Correct paraphrase reads: Ungulates are density-dependent only in relation to forage (Leopold 1933).

Plagiarized/incorrect quote reads: In hoofed mammals there is so far no visible evidence of any density limit except the carrying capacity of food.

Plagiarized/incorrect paraphrase may read: Ungulates are density-dependent only in relation to forage.

Other examples of plagiarism include, but are not limited to:

- Failing to provide a reference (attribution).
- Copying graphics and pictures from the internet without a reference (attribution).
- Paraphrasing without a reference (attribution).
- Submitting someone else’s work.

When in doubt about plagiarism consult your instructor

Absences from Class and Announced Exercises:

Although a formal roll-call may not be performed on a regular basis, the class will be counted and absences observed. If you have a large number of unexcused absences (> 5), or if you display a flagrant lack of punctuality, we reserve the right to have you withdrawn from class. Attendance is strongly encouraged. Students are held responsible for all material, handouts, and assignments presented in lecture and lab, **whether discussed in class or not**. A good record of participation in class will be taken into consideration for a student who is on the border-line between two grades.

Professionalism:

Students in the School of Forest Resources are pursuing courses of study that prepare them for careers as natural resources professionals. Professional education is much more than technical training and encompasses professional resource education as well as general education, social science and humanities courses. Collectively, these subjects constitute professional education.

Because the School is dedicated to professional education rather than technical training, the faculty and staff have certain expectations of themselves and of SFR students with regard to professionalism and personal conduct in their preparation for careers in the natural resource professions. Thus, SFR students and faculty are expected to exhibit conduct and attitudes appropriate to professionals.

Conduct and attitudes appropriate for professionals include, but are not restricted to,

1. The UA-M Code of Student Conduct published in the UAM catalog (pg. 62),
2. Attitudes appropriate for resource professionals of the 21st Century:
 - a. Respect for others and for their ideas;
 - b. Appreciation for ethnic and gender diversity in the workplace;

- c. Sensitivity to environmental quality;
- d. Adherence to professional ethics, e.g. the Society of American Foresters Code of Ethics.

Instructors reserve the right to reduce student grades or withdraw a student from class for unprofessional behavior.

Topic Outline: The course is divided into 2 topic sections.

1. Tree Ecophysiology: (August 22rd through October 16th)
 - Exam I Materials
 - What is ecophysiology?
 - Tree parts and their function
 - Fundamentals of tree improvement and forest genetics
 - Angiosperms / Gymnosperms
 - Vegetative organs and tissues of trees
 - Vegetative and reproductive structures
 - Roots and the rhizosphere

 - Exam II Materials
 - Photosynthesis 1 - Structures
 - Photosynthesis 2 – Reactions
 - Respiration and energetics
 - Plant essential nutrients and nitrogen metabolism
 - Ecology of plant competition
 - Plant / Soil relations
 - Transpiration and drought stress
 - Factors underlying sustainable forest production

2. Forestry Herbicides: (October 17th through December 6th)
 - Federal & State laws
 - Types
 - Uses
 - Application techniques and equipment
 - Equipment calibration
 - Safety
 - Disposal
 - Ecological considerations

OFFICE HOURS AND OUR TIME:

Generally, we will be available for help at any time that we are not in a class. Quick questions can be handled on the spot; larger problems may require an appointment. We do not mind you calling us at home if you need help while you are studying, or before a test. However, if you do call do it before 9:30 PM, or any time over the weekend. If we're not immediately available, we'll call back if possible.

If the class as a whole desires to schedule an extra session, we will arrange our schedules to accommodate. We will generally not take class time to review for tests, or to have a help

session. We will not go over tests in class unless we desire to make a teaching point. We will talk to you at any time about your own work, progress, grades or other matters.

<u>Formal Hours:</u>	Dr. Ficklin	9:30-11:00am Tuesday and Thursday
	Dr. Thompson	8:00-12:00pm most days

Ecophysiology Syllabus Addendum

Successful completion of the ecophysiology component of this course is accomplished by fulfilling two sets of assessment requirements. First, a general understanding of all course materials such that 70% of all coursework is deemed “correct” is required. Second, students must illustrate mastery of key concepts that are central to tree ecophysiology.

Mastery of the materials is shown by successfully completing the following core competencies:

- a) Identify structures of tree roots, stems, and leaves;
- b) Differentiate between vascular tissues based on both structure and function;
- c) Differentiate between the carboxylating enzymes of C3, C4, and CAM plants;
- d) List the plant essential macronutrients and provide examples of the role of each of the nutrients in plant physiology;
- e) List the intermediate and end products of photosynthesis and respiration.

Failure to “pass” any of these core competencies will result in an “I” (Incomplete) being issued for the course. Students will have the opportunity to retry competencies that were not passed during the intersession period. Once all core competencies are completed, the “I” will be replaced with the letter grade that was earned from examinations and other assignments. If the core competencies are not mastered, the “I” grade will be replaced with a grade of “F”.

By typing or signing your name in the box below, you are stating, without condition, your compliance with the following in regard to all required coursework:

(1.) all aspects of the UA-M Conduct Code have been followed with respect to all assignments, laboratory reports, or exams to be completed during this semester;

(2.) the work you submit is yours and yours alone unless part of a group assignment or group laboratory report;

(3.) you will not cheat or plagiarize at any time while completing your assignments, laboratory reports, or exams; and

(4.) for exams, you will not discuss their content with any other student in the class until all students have completed the exam and the answers are made available.

Violation of any or all of these conditions, whether they are discovered or witnessed before, during, or after any assignments, laboratory reports, or exams have been taken and/or completed and submitted for grade, will constitute a violation of the UA-M conduct code and will be reported to and punishable by the UA-M Judicial System. The process is initiated through the Dean's office.

Signing or printing your name on assignments, lab reports, and exams during this semester means that you understand what you signed today in class and will be liable for your actions.

Signature: _____ Date: _____

*See the body of the syllabus for definitions and examples.