

COURSE OUTLINE

Spring Semester 2006

Instructor: K. C. Steiner, 104 Ferguson, 865-9351/466-6479 (home), email steiner@psu.edu

Office Hours: I am usually in my office and therefore available for consultation at almost anytime.

Schedule: Mon. and Wed., 12:20-1:10 in 117 Borland

Text: Harlow et al., *Textbook of Dendrology* (9th ed.) (required)
K. C. Steiner, *Dendrology Handbook* (PSU Bookstore), has all handouts (required)
J. L. Farrar, *Trees of the Northern U.S. and Canada* (optional)

Catalog Description: Taxonomic and silvical characteristics, ranges, genetic relationships, and uses of important forest tree species. Prerequisite: FOR 203.

Objectives: 1) to learn the names and ecologically, economically, and botanically significant characteristics of approximately 150 North American tree species of major significance and 2) to learn fundamental concepts and definitions of forest biology as illustrated and exemplified by these species .

For each family, genus, and species you should know:

- (a) Scientific and standard common names as listed in this handbook.
- (b) Descriptive traits of species as stressed in lecture and in this handbook (you are not required to memorize the technical descriptions in small print in the textbook).
- (c) Approximate natural distributions of species and genera as covered in lecture and in text.
- (d) Economic and ecological importance of species as covered in lecture and in text.
- (e) Silvical characteristics of species, especially shade tolerance, habitats, and reproductive traits as covered in lecture, in text, and in this handbook.

Also, we will cover some important concepts from ecology and systematics using particular species as examples.

Academic Integrity

Each person admitted to Penn State receives a copy of “The Penn State Principles” which contains the following statement. Students endorse this statement by accepting admission: *“I will practice academic integrity. Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. In accordance with the University's Code of Conduct, I will practice integrity in regard to all academic assignments. I will not engage in or tolerate acts of falsification, misrepresentation or deception because such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.”*

The following definition of academic integrity will be applied in this course: Academic integrity is the pursuit of scholarly activity free from fraud and deception. Violations of academic integrity include cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

Grades: Students who wish to get an "A" in this course should achieve an average of at least 90%, those who want a "B" at least 80%, etc. The overall percentage grade will be determined as follows:

WEEKLY QUIZZES	(30%)
TESTS	
Midterm (Pinophyta)	(30%)
Final (Magnoliophyta + some Pinophyta)	(30%) ¹
ATTENDANCE	(10%)

MAKE-UP EXAMS WILL BE SCHEDULED ONLY IF APPROVAL IS SOUGHT PRIOR TO EXAM TIME. I will excuse you from a quiz if notified in advance and if your absence is something I consider to be non-discretionary.

Reading Assignments (in text):

First quiz: pages 1 to 14, 23-25, 45-65, 85-96 (except pp. 90-91). **Note:** See "Terms for Quiz 1" on subsequent page.

Subsequent quizzes and tests: Discussions of families, genera, and species corresponding to lecture coverage.

Lecture Schedule:

¹ Students who score higher on the final than on the midterm will have one-third of the difference added to the midterm grade.

- Jan 9/11** Introduction, purpose and scope of course, terminology to learn for Quiz 1, systematics, classification
- Jan 16/18** Nomenclature, ecological strategies, site classification; Pinophyta vs. Magnoliophyta
- Jan 23/25** Taxales, Podocarpaceae, Araucariaceae, Pinaceae genus *Pinus*; CONCEPTS AND TERMS: endemic species, naval stores
- Jan 30/Feb 1** Pinaceae (through *Pinus* subsect. *Balfourianae*); CONCEPTS AND TERMS: sympatry, allopatry, bird dispersal of pines, sibling species, typical variety, speciation
- Feb 6/8** Pinaceae continued (*Pinus* subsects. *Sylvestres*, *Contortae*, *Australes*); CONCEPTS AND TERMS: cone serotiny, epicormic branching, “grass stage” of pine growth
- Feb 13/15** Pinaceae continued (*Pinus* subsects. *Ponderosae*, *Sabinianae*, *Oocarpae*; genus *Larix*); CONCEPTS AND TERMS: “Big 4” of the South, terpenes, (in)determinate growth, short shoots
- Feb 20/22** Pinaceae continued (*Picea*, *Pseudotsuga*, *Tsuga*); CONCEPTS AND TERMS: layering, adventitious roots, ortet, ramet, introgression, flora of North America vs. Europe and Asia
- Feb 27/Mar 1** Pinaceae continued (*Abies*), Taxodiaceae; CONCEPTS AND TERMS: coppice silviculture
- Mar 6-10** **SPRING BREAK**
- Mar 13/15** Cupressaceae; CONCEPTS AND TERMS: calcicole, calcifuge, “Big 4” of the Pacific NW; **TEST (March 15)**
- Mar 20/22** Review test; Introduction to Magnoliopsida; ecological significance of conifers vs. flowering plants, pollen vs. seed dispersal, anemophily, entomophily, ornithophily, diaspore, anemochory, hydrochory, endozoochory, synzoochory; Magnoliaceae
- Mar 27/29** Lauraceae, Platanaceae, Hamamelidaceae, Ulmaceae; CONCEPTS AND TERMS: age of our taxa, disjunct population, excurrent form, deliquescent form, soil seed bank, root suckering, plagiotropic vs. orthotropic growth, spring maturation of fruits, bottomland species in the Great Plains, gallery forests,
- Apr 3/5** Moraceae, Juglandaceae, Fagaceae (through *Lithocarpus*); CONCEPTS AND TERMS: allelopathy

- Apr 10/12** Fagaceae continued (*Quercus*), Betulaceae, Tiliaceae; CONCEPTS AND TERMS: episodic growth, bottomland species as ornamentals
- Apr 17/19** Salicaceae, Ericaceae, Ebenaceae, Rosaceae, Leguminosae, Cornaceae; CONCEPTS AND TERMS: short rotation intensive culture
- Apr 24/26** Aquifoliaceae, Hippocastanaceae, Aceraceae, Oleaceae, Bignoniaceae; CONCEPTS AND TERMS: changes in plant distributions since the Pleistocene
- May 1-5** **FINAL EXAMS**