

**BSC 433/L: Plant Systematics
Spring 2007**

Instructor

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Office Hours

By appointment. E-mail, telephone, or make an appointment in class.

Course Description

Lecture 2 hrs. Lab 2 hrs. The nomenclature, classification, identification, and relationships of plants, with an emphasis on the local flora. Prerequisites: BSC 110 (General Biology 1), 111 (General Biology 2), 226 (General Botany), or consent of the instructor.

Course Overview

This course entails the study of plant diversity, focusing on the plants of Mississippi and the southeastern United States of America. Laboratory exercises and field trips will introduce the student to families, genera, and species of plants and to methods and texts whereby one can identify unknown plants. Lecture will give the student background on how to name and classify plants properly, how plants are distributed, features of the major groups of plants, and how major groups of plants are related.

Course Objectives

Upon completion of this course, the student should be able to:

- Understand the role of systematics in modern biology,
- Recognize by sight the common plants of Mississippi,
- Apply the proper taxonomic scheme and nomenclature to plants,
- Recognize morphological characteristics of plants and accurately use botanical terminology,
- Recognize and describe the morphological features of the major families of plants, and
- Use taxonomic keys to identify unknown plants.

Required Texts

Radford, A. E., H. E. Ahles, and C. R. Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. Chapel Hill, NC: University of North Carolina Press.

Walters, D. R., D. J. Keil, and Z. E. Murrell. 2006. *Vascular Plant Taxonomy*, 5th ed. Dubuque, IA: Kendall/Hunt Publishing.

Other Useful Texts (optional)

Nelson, G. 2005. *East Gulf Coastal Plain Wildflowers: A Field Guide to the Wildflowers of the East Gulf Coastal Plain*. Falcon.

Timme, S. L. 1989. *Wildflowers of Mississippi*. Jackson: University Press of Mississippi.

Other Useful Equipment (optional)

10× or 14× hand lens (=loupe, magnifier), \$20-50. Several online dealers include:

<http://www.kooters.com/handlens.html>

<http://www.ascscientific.com/lens.html>

<http://www.compleatnaturalist.com/default.htm>

<http://www.forestry-suppliers.com> (search for pocket magnifiers)

A pocket-size notebook. Use discretion here. Something is needed that you will feel comfortable carrying with you and taking notes in the field. Some prefer small clipboards; others prefer reporter-style steno notebooks. Just make sure it can fit in a pocket or pouch, or you can attach it to a carabineer and clip it onto your belt loops. If you bring a larger notebook, you will probably be frustrated as one hand is always occupied or you have to put it in and take it out of your backpack incessantly.

Field Trips

Because field trips involve the outdoors, plan to get dirty, as we will end up in wet, muddy, messy, and insect-infested places. Shorts, sandals, and flip-flops are strongly not recommended. Long pants with a snug hem (no loose bell-bottoms) and long sleeve shirts will help minimize insect bites, sun exposure, and cuts / scratches. Typical khaki pants are much better than blue jeans because they are lighter, cooler, and dry more easily if (when!) you get wet, but blue jeans are thicker protection against briars and other prickly plants. You should wear a pair of shoes that can get wet. I prefer good old rubber boots, but some people get blistered feet from walking in them for a long period. Don't forget a water bottle if you are easily dehydrated. We won't always have an opportunity to stop and pick up a cola and tater logs. We will have quizzes on most of our field trips. You will be tested on sight identification of plants that you have been formally introduced to during previous classes, labs, or field trips and on the keying of unknowns. You will be expected to know and spell the Latin names.

Quizzes

Numerous quizzes will be given throughout the semester, both at the beginning of lecture and during laboratory or field trips. *Be prepared for a quiz every time we meet.* We may not have a quiz at each meeting, but quizzes should be expected. Your three lowest quiz grades will be dropped. Any unexcused absence results in a quiz grade of zero and will be included among the three dropped scores.

Plant Collection

A collection of 50 pressed plants is required. Each plant must have at least some reproductive structures (flowers, fruits, cones, sori, even flower buds), must be correctly identified to family, genus, and species, must be aesthetically prepared and appropriately sized for mounting as a herbarium specimen, and must include a label on archival paper (available from the professor) with the appropriate information. Details about pressing and preparing the label are provided in a separate, more thorough handout. Nearly half of your grade is based on this project, which means that any diligent student should do very well in this course. The project is also your opportunity to *practice* the material learned in class, lab, and field trip and to learn additional plants.

Class Procedures and Requirements

Attendance in class and lab is critical for this course. Some plants may be encountered only once, and topics covered in the field may be relevant and obvious at only one site. The indicated chapter(s) should be read and exercises completed before class, which will prepare you for the material presented in lecture, lab, or field. The exams may cover any of this material, plus material learned in lab or on field trips. Any changes to the syllabus will be announced *in class or lab* at least one class period in advance.

Be prompt to class. Most laboratory periods will be dedicated to field trips, and we will leave on time (see www.time.gov if you need help). Questions and discussion are encouraged. Cellular phones, pagers, and other electronic devices should not disrupt class. Laptop computers may be used, but be aware of and eliminate noises or habits that may distract other students.

Evaluation Criteria (lecture and lab will be considered together for one final grade applied to both)

Quizzes	20%	(100 points)
Exam 1	10%	(50 points)
Final Exam	20%	(100 points)
Homework	10%	(50 points)
Project	40%	(200 points)

Grading Scale

90–100%	A	(450–500 points)
80–89%	B	(400–449 points)
70–79%	C	(350–399 points)
60–69%	D	(300–349 points)
0–59%	F	(0–299 points)

Make-Up Exams and Late Projects

Make-up exams are given **only** if written corroboration of a serious research conflict or disabling condition or situation is provided (doctor's note, advisor's note, parental note [with phone number] about funeral, police report). Contact professor immediately about re-scheduling. *Re-scheduling after one week is not possible.* Projects cannot be turned in late. A late project or an unscheduled make-up exam results in a grade of zero. *There will be no extra credit possibilities.*

Academic Honesty

When cheating is discovered, the faculty member may give the student an F on the work involved or in the course. If further disciplinary action is deemed appropriate, the student will be reported to the Dean of Students. In addition to being a violation of academic honesty, cheating violates the Code of Student Conduct and may be grounds for probation, suspension, and/or expulsion. Students on disciplinary suspension may not enroll in any courses offered by the University of Southern Mississippi.

ADA Policy

If a student has a disability that qualifies under the Americans with Disabilities Act and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by the ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies. Mailing address: 118 College Drive #8586, Hattiesburg, MS 39406-0001; Telephone: 601-266-5024; TTY: 1-800-582-2233; Fax: 601-266-6035; e-mail: suzanne.hebert@usm.edu.

Class Schedule*

Date	Topic	Reading Assignment (from Walters et al.)
January 17	Course Logistics Introduction to Plant Systematics	
19	Concepts Exercise	1
22	Vegetative Morphology Lab	3
24	Nomenclature, Part 1	2
26	Nomenclature, Part 2	
29	Reproductive Morphology Lab	11
31	Floras	5
February 2	Collecting Plants	7 and handout
5	Use of Dichotomous Keys	Radford et al., preface
7	Factors Affecting the Distribution of Plants	
9	Ecoregions of Mississippi and the SE	handout
12	Field Trip 1	
14	Survey of Plants (Review of Botany)	8
16	* EXAM 1 *	
19	Mardi Gras holiday no lab or field trip	
21	Gymnosperms: Pinaceae, Cupressaceae, Cycadaceae	10
23	Magnoliids and Primitive Tricolpates: Nymphaeaceae, Illiciaceae, Magnoliaceae, Lauraceae, Ranunculaceae	12
26	Field Trip 2	
28	Caryophyllids: Amaranthaceae, Cactaceae, Caryophyllaceae, Droseraceae, Polygonaceae Last day to drop class without academic penalty	13
March 2	Rosids, part 1: Onagraceae, Melastomataceae, Celastraceae, Euphorbiaceae	14
5	First Part of Project Due Field Trip 3	

7	Rosids, part 2: Hypericaceae, Violaceae, Passifloraceae, Salicaceae	
9	Rosids, part 3: Fabaceae, Rosaceae	
11	Daylight Savings Time begins Set clocks ahead 1 hour	
12	Spring Holidays no lecture, lab, or field trips	
14		
16		
19	Field Trip 4	
21	Rosids, part 4: Cucurbitaceae, Fagaceae, Betulaceae	
23	Rosids, part 5: Brassicaceae, Malvaceae, Sapindaceae, Anacardiaceae	
24	Saturday Field Trip to Clark Creek Natural Area, near Woodville 8:00 A.M. – 6:30 P.M. (optional)	
26	Field Trip 5	
28	Asterids, part 1: Apiaceae, Apocynaceae/Asclepiadaceae, Ericaceae, Sarraceniaceae	15
30	Asterids, part 2: Lamiaceae, Scrophulariaceae, Solanaceae, Convolvulaceae	
April 2	Field Trip 6	
4	Asterids, part 3: Asteraceae, Caprifoliaceae, Rubiaceae	
6	Good Friday holiday no lecture	
9	Field Trip 7	
11	Monocots, part 1: Alismataceae, Araceae, Palmae, Potamogetonaceae	16
13	Monocots, part 2: Liliaceae, Smilacaceae, Iridaceae, Orchidaceae	

13–15	Field Trip to the Bankhead National Forest, Alabama (required) Leave Friday after class, Return Sunday afternoon	
16	No Lab or Field Trip	
18	Monocots, part 3: Juncaceae, Cyperaceae, Poaceae	
20	Monocots, part 4: Juncaceae, Cyperaceae, Poaceae continued	
23	Field Trip 8	
25	Ferns and Fern Allies	9
27	Systematics Research and Species Concepts	17–18
30	Plant Collection due by 5:00 P.M. Graduate Student Presentations	
May 2	History of Systematics and Traditional Classifications	6
4	Phylogenetics and Modern Classifications	4
Wednesday, May 9 8:00 – 10:30 A.M.	Final Examination Comprehensive	