

Field Botany - BIO 235 (SNT, LAB, INQ)

Spring 2016

Professor: Dr. M. Eloise Brown Carter

Office: Oxford Science Building 326

Lecture Hours: Tuesday/Thursday; 11:50 a.m. – 1:30 p.m.

Lab Hours: Tuesday 1:40 – 4:40 p.m.

Phone: (770) 784-8343

Room: OSB 201

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Office Hours: Wednesday 1:30 and after lab on Tuesdays! Students are encouraged to see Dr. Carter during class or lab to make appointments for other times that match our schedules.

Required Texts: Kirkman, L.K., C.L. Brown and D. J. Leopold. 2007. *Native Trees of the Southeast*. Timber. Includes native trees in winter and with leaves. Non-native trees will require use of lab reference books.

Radford, A.E., H.E. Ahles and C.R. Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press. The most complete flora of the Southeast.

Others books will be available in lab.

**Proposed Topics for Investigation in the Field, Lab, and Classroom

LECTURE/INQUIRY		LAB/FIELD
Jan.	12	What's Field Botany? Can you tell the oaks from the hickories?
	14	Diversity and Classification - (Bring <i>Native Trees of the Southeast</i>)
	19	Piedmont Forest Systems
	21	Major Plant Families & Introduction to Project
	26	Ecoregions of Georgia
	28	Ethnobotany: Amazing Uses of Plants
Feb.	2	Medicinal Plants of Appalachians
	4	Workshop: Searching Botanical Information
	9	Atlanta Botanical Garden <i>Orchid Daze</i>
	11	TREE QUIZ – Be on time
	16	Reading the Landscape
	18	Investigating Oaks and More.....

**Class and laboratory schedule is dependent of weather, arrival of spring, and opportunities!

	23	Sex Advice from the Plant Kingdom	What is a flower? What is a species? BYOF (Bring flowers & "Radford")
	25	"Help, I can't find a persimmon!" <i>Ethnobotany Family Project: Part I: due in class</i>	
Mar.	1	Early Spring flowers; Collecting and identifying	Meet in Lab at 11:50 a.m. Bring Radford
	3	WINTER TREE EXAM - Turn in Field Notebooks - Meet in Lab	
	5-13	SPRING BREAK	
	15	Major Plant Families	Oxford's "wild gardens" of field and farm
	17	Presentations (3): Plant Families	
	22	Presentations (4): Plant Families	What is a weed? The Urban Landscape
	24	Presentations (3): Plant Families	
	29	Brender-Hitchiti Forest, Ocmulgee River <i>Ethnobotany Family Project: Part II due in class</i>	<i>Depart at 11:50 a.m.</i>
	31	"Please, can you help me?" - Bring Radford	
April	5	What are endemic and rare species?	Granite Outcrops (Bring water!)
	7	Plant Identification - Bring Radford	
	9-10	Weekend Field Trip** Mark your calendar. This trip is required!!!!!!!!!! Details to follow	
	12	Biodiversity & Wetlands	Lake Varner & Alcovy River Swamp
	14	Major Plant Families – Review	
	19	Final Laboratory Exam: Plant Identification with Radford 11:50 a.m.– 4:30 p.m.	
	21	Final Preparations and Reflections	
	26	Reading Day Which trees haven't you seen? One last walk!	

May 4th; Wednesday 2 p.m. – 5 p.m.

FINAL TREE EXAM Turn in Field Books

I never saw a discontented tree. They grip the ground as though they liked it, and though fast rooted they travel about as far as we do. They go wandering forth in all directions with every wind, going and coming like ourselves, traveling with us around the sun two million miles a day, and through

space heaven knows how fast and far!"

John of the Mountains: The Unpublished Journals of John Muir (1938)

A Field Guide to Field Botany

CLASS OBJECTIVES:

Field Botany is a laboratory/field course in the Natural Sciences. This course will engage you in the Inquiry Process in which you will develop the skills to pursue questions about biological diversity, ecology and botany. You will be engaged in the process of science, but you may be surprised to find that you will not be engaging in laboratory experiments. You will be developing questions (what species is that?), testing hypotheses (a devil's walking stick), and using your knowledge, keen observations skills, and analytical methods to pursue these questions. You will also be learning to read and think critically. The "primary text" for this course is the natural flora of the Piedmont of Georgia. In addition you will read and analyze taxonomic texts as you develop the skills of identification and the knowledge of the underlying taxonomy and classification. As you navigate through the world of plants you will:

- develop the observation and critical investigative skills to be keen observers of the natural world, *forever*;
- explore the questions, "what is a species and how are species similar and different;"
- investigate in the field and laboratory the flora and ecology of southeastern plant communities;
- discuss issues of biological diversity, land use, and conservation of endemic species;
- identify in the field 50+ woody plants in the winter condition;
- identify in the field ~ 100 woody plants in the spring;
- use a taxonomic key to identify local flora;
- develop an understanding of plant families, their characteristics, and current issues in classification;
- investigate the medicinal uses of plants.

CLASS PREPARATION: Students will not have readings from a textbook, but should expect to read for background information and class/lab preparation. Students should be ready to ask questions and to participate fully in class and laboratory discussions and activities. Students are responsible for *all* materials and information in lab, field, and lecture. These experiences provide the fundamentals essential to become successful botanists. References and resources are provided in the laboratory. Inquire and be resourceful!

WOODY PLANTS: Students will be able to identify approximately 50+ woody plants in the winter condition before Spring Break and around 100 woody plants by the end of the semester. *Students are expected to take the initiative and responsibility for locating and identifying woody plants. The instructor is ONLY one of many resources available to students. Optional Sunday afternoon walks.*

FIELD BOOKS: Students will keep a field book for field observations, notes, and REFLECTIONS. The purpose of a field book is to promote, reward, and evaluate independent fieldwork, as well as excellent field observation and identification skills. Field books may be purchased from your instructor.

Each entry in your Field Book must include:

- date, location, observers
- general description (physical features, disturbance, community type)
- notes – what you want to remember – species, characteristics, how to identify
- sketches – visual "notes" that record observations and analysis of the natural world
- REFLECTIONS - required paragraphs that (1) summarize experiences and reveals thought and creativity; and (2) reveal the process that you are using and find useful in field investigations (how do you know what you know?)

Field books will be collected and graded twice during the semester. *All notes must be made in pencil in the field.*

STUDENT PAPERS AND PRESENTATIONS: Students will select a plant family and several significant species with a focus on investigating the cultural uses (ethnobotany) of these plants. Each student will write a paper IN TWO PARTS on the ethnobotany of the family. Part I. is an introduction to the family and selected species and their uses (due on **Thursday, February 18th** in class). Part II. focuses on evidence for the medicinal properties and uses of *additional* species in the family (due on the **Tuesday, March 29th** in class). Students will select a portion of their research to present in a 15-minute presentation in class on March 17, 22 and 24. *Look for the ETHNOBOTANY PROJECT DESCRIPTION in the second week of class.*

FIELD EQUIPMENT: Every student will need a **hand lens** for class and lab and will be purchased in class. A pocketknife is not required, however I strongly recommend that you purchase or borrow one for the semester. Everyone should bring a personal **water bottle** for lab days. *Students should always pick up a collecting bag and rubber band before going in the field.* Come to class prepared to go in the field every day; regardless of the weather – we go! As the English say, “*There’s no inappropriate weather, just inappropriate clothing!*”

REQUIRED WEEKEND FIELD TRIP: All students must attend the weekend field trip and should **make plans in advance**. The cost of the trip varies, but usually there are expenses of about \$25.

HONOR CODE: All examinations and all work for credit in this course are covered by the regulations of the Honor Code. Your signature on your work attests to your upholding the Honor Code. Please read the information on **plagiarism** on the Library web page and always ask if you have any questions about assignments. Note that writing assignments will be submitted to **SafeAssign on Blackboard**.

EXAM PROTOCOLS. Do not come to any exam (classroom, laboratory or field) with notecards or paper in your pockets or on your person. All cell phones are to be turned off and either in your bag in the front of the room or on the instructor’s bench or office. **You may NOT have phones on your person.** Do not write notes, study material, abbreviations, or material that can be construed to be these on your body. Check for such notations and remove before the exam time. *These are considered to be a breach of the Honor Code.*

ABSENCES: Don't be absent; you will miss too much! However, if emergencies or illness prevent attendance, please notify the instructor immediately. The Biology Department policy on absences is attached. Unexcused absences or a failure to follow the procedures outlined in that handout **will result in a significant reduction in your grade**. Any questions about absences should be asked immediately.

WAYS OF INQUIRY (INQ): Field Botany is designated as a “Ways of Inquiry” or INQ course. In INQ courses, students “understand and question the way knowledge is sought by actively learning and practicing the discipline’s approaches to inquiry” (INQ Vision Statement). In Field Botany, you will have many opportunities to engage in biological inquiry by asking questions, making comparisons, observing natural diversity and ecological systems, reading and writing critically, and working independently to seek knowledge.

SUSTAINABILITY – LIFE IN BALANCE: This year many members of the Oxford College community will be exploring the theme of Sustainability: Life in Balance. In this course you will have the opportunity to connect your work in cell biology, energy transformation, and laboratory investigations to this theme.

EVALUATIONS: Students will be evaluated on medicinal plant family presentation and paper, field notebook, field exams on woody trees, weekly plant identifications, and a final laboratory identification of unknown flowering plants. Written examinations may be given in class. Class participation, contributions to laboratory and fieldwork, and the development of field skills also will be considered. Think of your grade as having 3 components:

Proposed contributions to grade:

Tree Identification 35%

Winter Quiz 5%

Winter Tree Exam 10%

Final Tree Exam 20%

Plant Identification in the laboratory 35%

Weekly keying and quizzes 20%

Final Exam 15%

Field Work, Writing, and Engagement 30%

Field Books 15%

Project, Research, Presentation & Paper 15%