FNR 3131C **Dendrology and Forest Plants** **Fall 2012**

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Field Assistants: Byron Love, Bryant Tindle, Satyra George

Class Schedule: Mon, Wed. 9:35 – 10:25 (Period 3), Room: MAT 0018

Lab Schedule: Section 1137 – Tues. 8:30 – 12:35 (Periods 2 – 5)
Section 1141 – Wed. 12:50 – 4:55 (Periods 6 – 9)

If one intends to manage, conserve or protect a forest it is necessary to know the species of which it is composed.

You are yourself a Sequoia…stop and get acquainted with your brethren.
(John Muir)

The Earth laughs with flowers.
(Ralph Waldo Emerson)

Course Description: Plants are the foundation of an ecosystem and through the process of photosynthesis they generate nutrient resources for all living entities. In this class we learn to identify trees and plants in a variety of habitats found in Florida as well as other parts of the world. We will study how to use different characteristics such as leaf shape, arrangement, bark texture, and habitat to identify trees and plant species. We will also learn to use a dichotomous key to assist in the identification of plant species.

Course Objectives: Upon completing the course, students will be able to:

- identify major tree, shrub and herbaceous species in the forests of the southeastern United States from living specimens as well as from samples of flowers, twigs, leaves, and fruits
- use rules of scientific nomenclature to correctly present the common name and binomial;
- employ dichotomous plant keys to identify unknown species in the future;
- state major and minor economic and ecological attributes of each species
- describe physical and biological features associated with the major tree species and forest types in other regions of North America and the world, and;
- synthesize, write and publicly present information about trees and plants.

Teaching Methods: Lecture, discussion, student presentations, demonstrations, assigned readings and hands-on laboratory sessions and field study.

Required Texts:

Godfrey, R. K. 1988. Trees, Shrubs and Woody Vines of Northern Florida and Adjacent Georgia and Alabama. The University of Georgia Press, Athens. 734 p.

And ONE of the following:

Harris, J.G. and Harris, M. W. 2000. Plant Identification Terminology: An Illustrated Glossary Spring Lake Publishing, Spring Lake UT. 206 p.

OR

Beentje, H.J. 2010. The Kew Plant Glossary: An Illustrated Dictionary of Plant of Identification Terms. Royal Botanical Gardens, Kew UK. 220 p.

Recommended Texts:

Miller H. J. and Miller K. V. 1999. Forest Plants of the Southeast and Their Wildlife Uses. University of Georgia Press. 454 p.

Taylor, W. K. 1998. Florida Wildflowers in Their Natural Communities. University Press of Florida, Gainesville. 370 p.

Castner, James L. 2005. Photographic Atlas of Botany and Guide to Plant Identification. Feline Press. 310 p.

Other sources:

Burns, R.M. and B.H. Honkala. 1990. Silvics of North America, Volumes 1 (conifers) and 2 (hardwoods). U.S.D.A. For. Ser. Agr. Handbook No. 654. Washington, D.C. 675 & 877 p. http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm

Clewell, A. G. 1985. Guide to the Vascular Plants of the Florida Panhandle. University Press of Florida, Gainesville. 605 p.

Duncan, W.H. and M.B. Duncan. 1988. Trees of the southeastern United States. The University of Georgia Press, Athens. 322 p.

Hardin J.W., Leopold D. J. and White, F. M. 2000 Harlow and Harrar's Textbook of Dendrology 9th ed., McGraw Hill. 544 p.

Harlow, W. M. 1941 Fruit Key & Twig Key to Trees & Shrubs Dover Publications, New York.

Kirkman, L.K., C.L. Brown & D.J. Leopold. 2007. Native trees of the Southeast: An identification guide. Timber Press, Portland, OR. 370 p.

Lakela, O. and Wunderlin, R. P. 1980. Trees of Central Florida. Banyan Books, Miami. 208 p.

Lance, R. 2004. Woody Plants of the SE United States: A Winter Guide University of Georgia Press, Athens. 441p.

Langeland, K. A. and Burks K. C. 1998. Identification & Biology of Non-native Plants in Florida's Natural Areas. University of Florida IFAS. Gainesville. 165 p.

Myers, R. L. and Ewel, J. J. 1990. Ecosystems of Florida. University of Central Florida Press. Orlando. 765 p.

Nelson G. 1996. The Shrubs & Woody Vines of Florida, Pineapple Press Inc. Sarasota, FL. 391 p.

Nelson G. 1994. The Trees of Florida. Pineapple Press Inc. Sarasota, FL. 338 p.

Riffle, R. L. and Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press. 528 p.

Wilson, B.F. 1970. The Growing Tree. The University of Massachussetts Press, Amherst. 152 p.

Wunderlin, R. P. and Hansen, B. F. 2003. Guide to the Vascular Plants of Florida, 2nd Ed. University Press of Florida, Gainesville. 787 p.

Tree & Plant Online Resources:

Plant databases:
http://plants.usda.gov/ - list of plants and characteristics
http://www.floridata.com/ - database of Florida trees and plants
http://www.plantatlas.usf.edu/ - plant atlas (USF)
http://oregonstate.edu/trees -Trees of the Pacific Northwest
http://plants.ifas.ufl.edu/node/22 - Aquatic plants
http://efloras.org/ - Harvard's Flora of the world (see Flora of North America)
http://www.npwrc.usgs.gov/resource/plants/floraso/species.htm#contents–Southern wetland flora
http://www.hort.uconn.edu/plants/index.html - NE US
http://www.sfrc.ufl.edu/Extension/ffws/tof.htm - Trees of Florida
http://plant-materials.nrcs.usda.gov/ - NRCS flora information
http://esp.cr.usgs.gov/data/atlas/little/ - Tree species range maps
http://www.shirleydenton.com/plants/plantindex.php - Fl plant photographs by Shirley Denton
http://centerforplantconservation.org/ - endangered plants
http://www.cnr.vt.edu/dendro/wwwmain.html - Virginia Tech dendrology page
http://www.flmnh.ufl.edu/herbarium/cat/ - UF herbarium

Invasive plants:
http://plants.ifas.ufl.edu/identif.html - Non-native plants in Florida
http://www.fleppc.org/ - Florida Exotic Pest Plant Council
http://www.invasiveplantatlas.org/ - Invasive Plant Atlas
http://www.invasivespeciesinfo.gov/plants/databases.shtml - invasive species

Publications and forest information:
http://edis.ifas.ufl.edu/index.jsp - EDIS Documents
http://www.freshfromflorida.com/pi/pubs.html - FDACS Publications
http://www.forestencyclopedia.net/ - Forest Encyclopedia
http://www.sfrc.ufl.edu/Extension/florida_forestry_information/forest_resources/ - FL
http://www.fs.fed.us/database/feis/ - fire effects on plants
http://davesgarden.com/guides/botanary/ - botanical terminology
http://www.flmnh.ufl.edu/herbarium/voucher.htm - how to produce a pressed specimen

Many other valuable online resources are available. A Google search can help you find endless amounts of information.

Things you will need for this class in general:

1) A pocket knife (any little knife will do - nothing fancy), a pair of hand pruners are also good to have but not required.

2) Bug Spray, I personally use some kind of mosquito spray to put on exposed skin AND Repel Permanone for ticks and chiggers to put on clothes. (Wal-Mart, Target etc. should have all the selection you need). NOTE: Permanone is extremely lethal to cats. It stays on your clothes for up to 6+ washes. Do NOT apply Permanone to your skin.

3) I will have 10X hand lenses available for students.

4) Snake Chaps: I don't think you will need these but if walking in the woods concerns you then they can be a source of peace of mind. Examples of what you might want: http://www.forestry-suppliers.com/search.asp?stext=snake%20chaps

5) A way to take notes in the woods (so a small clipboard or pocket notebook), a pack to carry supplies, pencils (work at odd angles even when wet). Examples of waterproof field notebooks: http://www.forestry-suppliers.com/search.asp?stext=rite%20in%20the%20rain

6) Footwear and raingear. It is up to you to decide what you deem necessary to function in the woods, but we will likely encounter briars and some kind of precipitation.

7) A water bottle for field sessions.

8) A **POSITIVE ATTITUDE** sure makes learning about trees and plants a whole lot more fun.

If you are allergic to insect bites, or if you have other medical conditions for which emergency treatment may be required, **it is your responsibility to inform the instructor before the course starts, about:** (1) your specific condition, (2) where you keep your medicine, and (3) how to administer emergency treatment should the situation arise. Field labs are long and tedious (oops, I mean energizing); therefore, if you are diabetic it is your responsibility to maintain your personal supply of required food or liquids, should you need them, in order to continue the laboratory.

The following is important information you need to know when working outdoors:

- Chiggers: http://edis.ifas.ufl.edu/pdffiles/IG/IG08500.pdf or http://pherec.org/EntGuides/EntGuide6.pdf
- Ticks & Lyme Disease: http://edis.ifas.ufl.edu/pdffiles/MG/MG20400.pdf or http://fmel.ifas.ufl.edu/buzz/clticks.shtml
- West Nile Virus: http://edis.ifas.ufl.edu/IN117
- Dengue Fever: http://edis.ifas.ufl.edu/in699
- Heat: http://solutionsforyourlife.ufl.edu/hot_topics/agriculture/heat_stress.html
- Dehydration: http://fineinstitute.com/patient-education/?id=11913&lang=English&db=hlt&ebscoType=static&widgetTitle=Spinal+Links

Class and Laboratory Attendance:

As a natural resource professional **you are expected to assume the responsibility of choosing when absence from class or lab is to your personal or professional advantage**. For whatever reason may justify your absence, **you are entirely responsible for obtaining the information missed from someone other than the instructors/TA**. In general, no make-up tests will be given for absence from the exams or quizzes (of course some situations merit exceptions (hurricanes, death in the family, serious illness, visit from Mick Jagger but not Eminem). Also, because we are limited for space in the vans you will need to get permission from the instructor ahead of time if you wish to attend a lab section other than the one you signed up for.

Course Activities

Lectures will be directed discussions, explanations and question/answers from the material that you have been assigned to read. They will also contain additional information that is not in the text. I may make lecture slides available electronically for you to access but not until after class.

Lecture Exams will be comprehensive, covering all material presented in lecture, laboratory and reading assignments from the beginning of the course. The format of each exam will vary, and may include definitions, compare/contrast, short answer, fill in the blanks, multiple choice, true/false, list/explain, construction of plant identification keys and maybe short essay questions and possibly an actual plant specimen to identify. These exams will be given in class during normal class times.

Laboratory:

A quiz will be given at the beginning of **most** field sessions. The format of each quiz will remain constant but the length and value of the quizzes may vary. For each plant **on each quiz**, you will be expected to **print, correctly and legibly, the binomial name of the plant and answer any question** regarding the plant that has been discussed in lecture, lab, or the text and readings.

Correct spelling and presentation of scientific nomenclature (family and binomial) is essential! Regardless of the weights of laboratory or lecture quizzes, **full credit will be deducted** from each word of scientific nomenclature that is **not spelled or presented correctly**!

There will be a total of 11 quizzes. You're lowest grade will be dropped.

The remainder of the lab will involve learning an average of 12 – 15 new plants and reviewing others.

There will be a mandatory field trip which will last the entire day on *either* Saturday Oct. 13th OR Sunday Oct 14th. You will be required to sign up for **one** of these dates. Space is limited. You will be responsible for bringing lunch, snacks, water, and appropriate field gear.

Assigned Readings:

You will be given assigned readings each week. These readings are listed on the syllabus. These may be salient articles found in magazines, journals, newspapers, books, or something given by a guest lecturer for you to read prior to their discussion. Material in all reading assignments will be used for the written exams and weekly quizzes; therefore, all readings should be completed before labs. You can find them electronically on Sakai (under the resources folder, "assigned readings").

There are additional optional resources also posted in Sakai. These are for YOUR benefit and are intended to help you learn the species. There are many field guides covering a lot of the species you will be learning. It may be helpful to print some of these out and bring them to lab.

Assigned Readings Abbreviations:

EF - Ecosystems of Florida by Myers and Ewel

TD - Textbook of Dendrology

NATV - North American Terrestrial Vegetation

PF - Priceless Florida

FNAI - Florida Natural Areas Inventory

If you have any questions regarding any assignments, projects, etc., refer to the syllabus BEFORE contacting the instructors/TA.

Projects:

1. Species Fact Sheet & Presentation:

Part 1: Species Fact Sheet: You will be **required** to create an electronic document detailing one species in a similar manner to the information provided to you in each lab by the instructors. You will be assigned a species during the first week of class and a template will be provided for you to use. You MUST cite all sources that you use. All materials and instructions for this project will be available through Sakai (assignments folder) and subject to review by the TURNITIN plagiarism software.

This assignment is due ***on Sakai*** by midnight September 28th.

Remember: An entire book could be written about any one species. This is not what we are asking for. Nor do we want an arbitrary list of facts. We want you to synthesize those characteristics critical to identifying a species from a larger body of facts. Keep in mind that one source may contradict another. That is the nature of the game. It is up to you to use your best judgment and come to a conclusion *by going out and observing multiple specimens of your species*. It is absolutely plausible for you to come up with characteristics that we do not use or were not aware of. If there is a discrepancy and you can prove it, you will get it right (and will henceforth be known as a Super Dendroid). If you get stuck, we are here to help.

Part 2: Presentation: During one of your regularly scheduled labs, you will teach your species to the group and instructor you are assigned to for that day. Prior to this, we will grade your fact sheets and return them to you with necessary corrections. You MUST present your species using

these corrections or points will be deducted. If you feel that a particular detail on your fact sheet is valid (and can prove it) please discuss it with one of the instructors. Your goal is to teach your species similar to how your instructors teach each week. However, feel free to be creative and personalize your presentation as you wish ***so long as it is in a professional manner.*** As in lab, your species presentation should last approximately 10 minutes. You will present your species in the lab section you are registered for either Tuesday, October 30th OR Wednesday, October 31. We will assign you to a group to prevent species overlap.

2. Species Guide

You will be required to maintain a species guide for all plants covered in this class throughout the semester. You may use the species description template we provide on Sakai or any other format (including your own) as long as it is easily discernible and complete. The extent and level of detail is up to you; however, your ability to present the information in a complete yet concise manner will be a factor in your grade. In addition to notes taken in lab and information acquired from additional resources (internet, books, etc.), you must have at least one photograph/line drawing showing the identifying characteristic(s) for each species. These can be your own drawings and photographs *taken on your own time* (outside of lab class) or photographs/line drawings found on the internet. If you use outside resources YOU MUST CITE THE REFERENCE. **Failure to cite a reference is considered plagiarism and will result in a zero for the project along with other disciplinary actions.** You may use any kind of binder, notebook, or book to complete this project so long as it is securely bound and well organized. All species must be alphabetized by family.

Students are encouraged to go out in the field and collect your information/images together, however, this is an individual project and each student must present their own work. Do NOT share images with other students or split up the species among all those in your group and share the information because duplicates will be noted and you will receive a 0 for this task. The point of this project is to help you study and learn the species.

The species guide will be checked and graded several times at random throughout the semester, so be sure it is up to date at all times (and don't get behind!). The final version is due in class on December 5, 2012.

Dendrology and Forest Plants Lecture & Lab Schedule
(I reserve the right to adjust this throughout the semester)

Week	**Lec/Lab**	**Dates**	**Topics**	**Assigned Readings**
1	Lecture Lab	22-Aug T & W	Course introduction *No Lab This Week*	What is Dendrology? (Urban Forestry Manual)
2	Lecture Lecture Lab	27-Aug 29-Aug T & W	Plant Characteristics and Nomenclature I Plant Characteristics and Nomenclature II Lab 1 - How to ID a Tree and Plant Characteristics. Discuss class projects	How to ID a Tree Nomenclature, Rules, Spelling, and Usage (Word Document) TD: Nomenclature TD: Morphology Bark Ecology Plant Characteristics Guide (under "Lab Materials") folder
3	Lecture Lecture Lab	3-Sep 5-Sep T & W	*No Class* – Labor Day How to use and Create a Dichotomous Key Lab 2 – How to Key	**Homework Exercise**: See "How to use a dichotomous key" (Word document). Follow instructions. **HOMEWORK EXERCISE DUE AT BEGINNING OF LAB**
4	Lecture Lecture Lab	10-Sep 12-Sep T & W	Fundamental tree biology Biomes of the World (David Fox) Lab 3 - Flatwoods	Silvics Manual Vol 2: "The tree and its environment" pp. 45 - 64 FNAI: Flatwoods pp. 49-60 PF: Flatwoods pp. 55-65 EF: Fire Ecology in Pine Flatwoods pp. 129-133
5	Lecture Lecture Lab	17-Sep 19-Sep T & W	Processes Influencing Plant Communities I Processes Part II Lab 4 - Oaks	Oaks of North America

6	Lecture	24-Sep	Forest History of Florida	FNAI: High Pine (upland mixed woodland to sandhill) pp. 32-42
	Lecture	26-Sep	FL Community I	NATV: pp 318-335 (chapter 11)
	Lab	T & W	Lab 5 – Sandhills	
		28-Sep	***Species Fact Sheets Due***	
7	Lecture	1-Oct	FL Community II	NATV: Wetlands 336-448
	Lecture	3-Oct	FL Community III	FNAI: Forest Swamps pp. 137-152
	Lab	T & W	Lab 6 - Basins, Domes, and Alluvial Systems	
8	Lecture	8-Oct	Keying Practicum I	FNAI: Hardwoods pp. 154 – 169
	Lecture	**10-Oct**	***Exam I***	
	Lab	T & W	Lab 7 – Bottomlands	
Lab Field Trip to Cedar Key: Saturday October 13th or Sunday October 14th (Sign up for one of these days)				
9	Lecture	15-Oct	Discuss Exam/Keying Practicum II	FNAI: Scrub pp. 44-48; Coastal pp. 70-84; Salt marsh pp. 170-174; Mangrove Swamp pp. 175-178
	Lecture	17-Oct	US I	Menges_Conservation of Scrub
	Lab	13-Oct & 14-Oct	Lab 8 – Coastal and Scrub	Vascular flora of five Florida shell middens
10	Lecture	22-Oct	US II (PNW)	FNAI: Upland Hardwoods pp. 12 – 31
	Lecture	24-Oct	US III– Southwest (Escobedo)	
	Lab	T & W	Lab 9 - Upland Hardwoods	
11	Lecture	29-Oct	Invasives	Invasiveness vs. Invasibility
	Lecture	31-Oct	US –IV Mid-Atlantic (Northrop)	Botanic Definitions (Native, Endemic, Cultivar, etc.)
	Lab	T & W	Lab 10 – Invasives ***Project Presentations***	Control of invasive alien weeds averts imminent plant extinctions Coevolution between invasive and native plants (Word doc)

12	Lecture Lecture Lab	5-Nov 7-Nov T & W	US – V Lake States (Jokela) Global I – India (Sharma) Lab 11 - Uplands	Global Forest Resources Assessment 2010 (Chapters 2 - 3)
13	Lecture Lecture Lab	12-Nov 14-Nov T & W	*No Class* – Veteran's Day Global II –N. Europe (Hulcr) Lab 12 - Urban	CFL Tree Guide: Benefits, Costs, and Strategic Planning pp 1-40 Global Forest Resources Assessment 2010 (Chapters 4 - 5)
14	Lecture Lecture Lab	19-Nov 21-Nov T & W	Global III – Costa Rica – (Celis) *No Class* - Thanksgiving *No Labs* - Thanksgiving	Global Forest Resources Assessment 2010 (Chapters 6 - 7)
15	Lecture Lecture Lab	26-Nov 28-Nov T & W	Global IV - Niger Climate Change (Martin) Lab 13 – Odds & Ends	Effects of climate change on ag and resources in US: (Executive Summary and Chapter 3) pp. 1-10, 75-120. Individual sections also available online.
16	Lecture Lecture Lab	3-Dec **5-Dec** T & W	Stand Dynamics I Review ***Species Guides Due by 5pm*** Lab Final	
Final Exam Week		**13-Dec** ***Exam II*** 12:30 pm – 2:30 pm MAT 0018 Group 13C		

Grading

Grades will be allocated as follows:

Lab Quizzes (30%)

11 total, lowest dropped (3% each)

Lecture Exams (30%)
#1 (15%)
#2 (15%)

Lab Final (20%)

Projects (20%)
Species Fact Sheet and Presentation (10%)
Species Guide (10%)

Policy on Questioning Test Scores: Questions on quiz or exam scores must be addressed before the end of the next class period after the quizzes or exams are returned.

Grades - Grading follows University standards and will based on the following scale:

100-93% = A
90-92% = A-
89-88%= B+
87-83% = B
82-80% = B-
79-78%= C+
77-73%= C
72-70% = C-
69-68%= D+
67-63%= D
62-60% = D-
$\leq$ 59% = E

Academic Honesty (I take this very seriously)

In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

(Source: 2012-2013 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

☐ *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,*

www.counseling.ufl.edu/cwc/

Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Training Programs
Community Provider Database

☐ *Career Resource Center*, First Floor JWRU, 392-1601, **www.crc.ufl.edu/**

Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**