BIOL 3610/5610 – Dendrology — Fall Semester 2015

Instructor: Dr. Carter
Office: BC 1105 *Herbarium:* BC 1040
Telephone: (229) 333-5759, ext. 5763
e-mail: Please use the mail tool in BlazeVIEW.

Office Hours: BC 1040 or BC 1105
Mon & Wed 11:00 AM–12:00 PM; 3:00–4:00PM; other times by appointment

Weekly Course Schedule

Mon	Lec	10:00–10:50 AM, BC 1202
Wed	Lec	10:00–10:50 AM, BC 1202
Fri	Lec	10:00–10:50 AM, BC 1202
	Lab	11:00 AM–1:50 PM, BC 2040

Miscellaneous
Two or three day-long Saturday field trips and one required four-day weekend field trip to the Appalachians are scheduled.

Course Description
Pre-requisite: Completion of Core Area D. A survey of the biology and diversity of trees and of the major forest communities. Course will emphasize species of the southeastern United States and forest communities of North America, including field identification, description and classification of forest communities, and a study of reproductive cycles, anatomy, and development of representative species. [3-3-**4**]
Lecture contact: 75 mins X 30 lectures = 2250 mins Laboratory contact: 170 mins X 15 labs = 2550 mins
Credit: 4 semester hrs

Course Outcomes
Following is a list of course outcomes linked to Biology Department Educational Outcomes (B) and Valdosta State University General Education Outcomes (V).

- The student will demonstrate understanding of the basic principles of taxonomy, including identification, nomenclature, and classification. [B 2; V 4, 7]
- The student will demonstrate comprehension of basic concepts and the ability to use scientific terminology accurately through effective oral and written communication and the use of dichotomous keys. [B 1; V 4, 5, 7]
- The student will demonstrate the ability to handle and analyze plant materials in the field and laboratory. [B 1; V 5, 7]
- The student will demonstrate the ability to work and use basic equipment effectively in the field and laboratory. [B 1; V 4, 5, 7]
- The student will demonstrate the ability to gather and analyze data scientifically. [B 1, 5; V 3, 5]
- The student will demonstrate the ability to follow oral and written instructions effectively. [V 4, 7]
- The student will demonstrate the ability to access course resources and complete assignments on-line using computer technology (i.e., BlazeView). [V 3]
- The student will demonstrate the ability to complete assignments, quizzes, and examinations ethically. [V 8]

Assessment of Learning

- Three lecture examinations will be given.
- Routine field identification quizzes will be given.
- Students will keep a course notebook.

Required Texts

- *Elias, T.S. 1987. *The Complete Trees of North America.* Gramercy Publishing Company, New York. *[*Copies of this text may be borrowed from the instructor.]*
- Duncan, W.H. and M.B. 2000. *Trees of the Southeastern United States.* Univ. of Georgia Press, Athens. 336 pp.
- Faircloth, W.R. 1977. *Common Trees of Central-South Georgia*. Valdosta State University Bookstore.

Miscellaneous Required Items

- Pencils or pens for recording notes, etc.
- Spiral bound notebook, convenient for field trips
- 300 3X5 inch lined notecards for field quizzes
- Hand-lens with lanyard

Additionally, the following are recommended.

- Old clothes, including long pants, and sturdy shoes or boots for field trips
- Rain gear and warm clothing, as appropriate
- Insect repellant for field trips
- *Immediately upon returning from field trips, students are urged to check their bodies thoroughly for ectoparasites (i.e. ticks) and, if possible, to shower.*
- Bottled water for field trips
- Food for all-day field trips

Grading. If a student thinks an error has been made in grading an examination, quiz, or any other assignment, s/he should communicate about this directly with the instructor *within one week* of the instructor's returning of the graded examination, quiz, or assignment. The final course average is calculated as follows.

BIOL 3610

A = 900-1000 points
B = 800-899 points
C = 700-799 points
D = 600-699 points
F = <600 points

Allocation of points:	
Lecture Exam 1	150 points
Lecture Exam 2	150 points
Final Exam	200 points
Field Quizzes	300 points
Course Notebook	100 points
Laboratory Report	100 points
Total	1000 points

BIOL 5610

A = 1100-1200 points
B = 1000-1099 points
C = 900-999 points
D = 800-899 points
F = <800 points

Allocation of points:	
Lecture Exam 1	150 points
Lecture Exam 2	150 points
Final Exam	200 points
Field Quizzes	300 points
Course Notebook	100 points
Laboratory report	100 points
Term project	200 points
Total	1200 points

Meeting the minimum point requirement for a letter grade does not necessarily assure that the student will receive that grade. Assignment of the final grade is the prerogative of the instructor and will be based upon each individual student's overall performance, including patterns of consistency, trends toward improvement, and positive attitude as shown through attendance, participation, and cooperation.

Attendance and punctuality. Regular attendance and punctuality are expected. The student is responsible for all material missed, regardless of the reason for absence. Students arriving late for class should enter the lecture room or laboratory quietly and take the nearest seat to avoid disruption. Bear in mind that field trips normally require prompt departure from campus and that tardiness could easily result in a student missing transportation to the field site and absence from the field trip, and that such absences will adversely affect the course grade. Attendance will normally be taken at the beginning of the period. Students who arrive after the roll is called are counted absent unless they inform their instructor immediately after class or lab of their tardiness. It is the student's responsibility to inform the instructor of her/his tardiness. Each three cases of tardiness will be counted as one absence, and cases of tardiness will be counted as absences thusly, unless a satisfactory explanation is provided to the instructor by the student. It is the instructor's prerogative to have the explanation in writing. Any scheduling problems or other extenuating circumstances necessitating chronic tardiness should be explained to the instructor in writing and properly documented at the beginning of the semester. In order to have an absence excused, the student must provide a written explanation with proper documentation immediately upon returning to class. Providing an explanation of absence or tardiness by the student does not insure that the absence or

tardiness will be excused. The instructor shall determine the validity of all excuses. Students absent from more than 20% of the regularly scheduled lecture and laboratory periods are subject to failure in the course, as detailed under Absence Regulations in the VSU Undergraduate Catalog. Points will be deducted from the final grade for excessive unexcused tardiness or absence.

Field trips. On-site, spontaneous identification of native and naturalized trees will be emphasized on field trips. These field identification quizzes account for a substantial portion of the course grade; therefore, attendance of all scheduled field trips is essential for success in the course. In addition to insect repellant and water and other items recommended above, students must bring hand lens, 3×5 note cards, and notebook on all field trips. Most field trips will be taken during the scheduled lab period. However, several all day Saturday field trips are scheduled. For these trips, students should bring water, soft drinks, and food as needed. Attendance on the Saturday field trips is optional but highly recommended, and extra points may be earned through participation on these trips. Attendance on the weekend field trip to Highlands Biological Station in Highlands, North Carolina, is an essential component of the course, and it is a course requirement. A complete field trip schedule will be provided during the first week of class.

Lecture examinations. Two lecture examinations will be given during the semester, one of these prior to midterm. Each of these exams accounts for 150 points in determining the overall course grade.

Final examination. A comprehensive final examination will be given during the final examination period, which will comprise elements of both lecture and laboratory, and will account for 200 points in determining the overall course grade.

Field quizzes. The student will be required to recognize on sight in the field and to identify by *family name, scientific name (binomial)* and *common name* major native and naturalized locally occurring trees. Field quizzes will be given spontaneously during class field trips. Collectively, the field identification quizzes account for 300 points in determining the overall course grade. Refer to section on academic integrity below for additional information about field quizzes.

Course notebook. Students will be required to keep and to submit a course notebook for grading. The following should be emphasized in the course notebook: a summary of the diagnostic characteristics and one or more representative leaves for each species taken up during regular field trips. The course notebook will be evaluated based upon completeness, organization, clarity and neatness. The course notebook is due at the beginning of the final exam period and accounts for 100 points in determining the overall course grade.

Graduate credit. Students registered for BIOL 5610 will be required to complete and submit a term project for grading (200 points). Graduate students should meet with their instructor during the first week of the semester to discuss their project assignments.

Class conduct. Students are expected to comport themselves courteously at all times during lecture and laboratory. Disruptive behavior will not be tolerated, and students behaving in a disruptive manner will be asked to relinquish their VSU student identification card and will be removed from class and referred to the Dean of Students for disciplinary action. Refer to the Student Code of Conduct, Appendix A in the VSU *Student Handbook*. Consumption of food or drink (including water) and wearing of hats or caps is prohibited in the lecture room. Students should be punctual for all scheduled lecture and laboratory meetings, and, except in situations of emergency, students should not depart from lecture before being dismissed. Students are to direct their full attention to lecture and are to refrain from unwarranted discourse. Behavior contrary to these guidelines is disruptive. Disruptive behavior will result in deduction of points from the final grade.

Use of cellular telephones, pagers, digital cameras, and other such communication devices. Use of cellular telephones, pagers, or any similar communication device or digital camera is prohibited during lecture, examinations, or quizzes, unless expressly authorized by instructor. If students bring cellular telephones or any other similar devices to lecture, it is their responsibility to switch them off prior to the beginning of the lecture

period. Ringing, buzzing, or any other sounds emitted from such devices will be treated as disruptive behavior on the part of the owner/possessor, and the owner/possessor will be asked to leave lecture immediately.

Academic integrity. Students are encouraged to work together and to learn from one another in an appropriate manner. Cooperation between students is especially encouraged in study outside of class. However, students should bear in mind that most work ultimately must be done individually and independently. All examinations, tests, and quizzes are given to students individually and are to be completed independently. Cooperation by students on quizzes, tests, or examinations is prohibited and constitutes cheating. The following rules apply during field quizzes. Prior to the field quiz, there should be nothing written on the quiz notecard except the number of the test specimen and student's name. After the instructor has presented the test specimen, before recording the answer on their notecards, students shall disperse so the minimum distance between students is six (6) feet. Oral and other communication between and among students are prohibited during field quizzes. Students should take every precaution to cover the completed quiz notecards before submitting them to the instructor. Quiz notecards are collected after each test specimen. No quiz notecards will be accepted once the instructor has issued the final call for submission of quiz notecards. Unless otherwise indicated, quizzes, tests, and examinations are taken strictly from memory without use of textbooks, notes, cell phones, headphones, or other communication devices. Unless otherwise indicated, assignments and assessments are to be completed individually and independently. Behavior contrary to these guidelines is prohibited and constitutes cheating. Plagiarism and cheating will not be tolerated and will be prosecuted to the full extent allowed by University policy and the law.

Students with disabilities. Students requiring classroom accommodations or modifications because of documented disabilities should discuss this need with their professor at the beginning of the semester. Disabled students who are not registered with the Special Services Program should contact the Office of Special Services, Nevins Hall 1115, Telephone 245-2498.

Supplemental Reading

For current information on classification of angiosperm plant families –

Stevens, P. F. (2001 onwards). Angiosperm Phylogeny Website. Version 9, June 2008 [and more or less continuously updated since]. http://www.mobot.org/MOBOT/research/APweb/ (Accessed: March 11, 2012)

For plant community classification –

Barbour, M.G., M.G. and N.L. Christensen. 1993. Vegetation, pp. 97-131 in: Morin, N.R. (Ed.). Flora of North America, Vol. 1. Oxford University Press. New York.

Description of the Ecoregions of the United States, compiled by R.G. Bailey, U.S. Forest Service. March 1995. http://www.fs.fed.us/land/ecosysmgmt/index.html (Accessed: March 11, 2012)

Ecological Subregions of the United States, compiled by McNab, W.H. and P.E. Avers. U.S. Forest Service. WO-WSA-5. July 1994. http://www.fs.fed.us/land/pubs/ecoregions/ (Accessed: March 11, 2012)

Ecoregions, Nearctic. World Wildlife Fund, 1250 Twenty-Fourth Street, N.W., P.O. Box 97180, Washington, DC 20090-7180. http://www.worldwildlife.org/wildworld/profiles/terrestrial_na.html (Accessed: March 11, 2012)

NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer (Accessed: March 11, 2012)

Peet, R.K., T.R. Wentworth, and P.S. White. 1998. A Flexible, Multipurpose Method for Recording Vegetation Composition and Structure. Castanea 63:262 -274.

Thorne, R.F. 1993. Phytogeography, pp. 132-153 *in:* Morin, N.R. (Ed.). Flora of North America, Vol. 1. Oxford University Press. New York.

Wharton, C.H. 1978. Physiography and Biota of Georgia. BioScience 28:336-339.

Wharton, C.H. 1978. The Natural Environments of Georgia. Bulletin 114, Georgia Department of Natural Resources. Atlanta.

Miscellaneous –

Peattie, D.C. 1980. Natural History of Western Trees. University of Nebraska Press. Lincoln. 751 pp.

Peattie, D.C. 2007. A Natural History of Trees: of Eastern and Central North America. Houghton Mifflin Co. New York. 606 pp.

Tomlinson, P. B. 2002. The Biology of Trees Native to Tropical Florida. Second Edition. Printed privately. Petersham, Massachusetts. 395 pp.

Tentative Course Outline with Laboratory Schedule

Week of Aug 17
Classes begin
Lecture:
Introduction to Course
What is a tree? What is a forest?
Overview of the Classification of Plants
Diversity of Trees
Gymnosperms
GINKGO

- Ginkgoales: Ginkgoaceae: *Ginkgo:* ginkgo

CONIFERS

- Pinales: Cupressaceae, Pinaceae, Taxaceae: *Chamaecyparis, Juniperus, Taxodium; Abies, Pinus, Picea, Tsuga; Taxus, Torreya:* white cedars, junipers, baldcypresses; firs, pines, spruces, hemlocks; yews, gopherwood

*Laboratory: Basic Vegetative Structure and Terminology

Week of Aug 24
Lecture: Diversity of Trees
Angiosperms
MONOCOTS

- Arecales: Arecaceae: *Sabal:* cabbage palm

MAGNOLIIDS

- Magnoliales, Laurales, Illiciales: Magnoliaceae, Annonaceae, Lauraceae, Illiciaceae: *Liriodendron, Magnolia; Asimina; Persea, Sassafras, Litsea; Illicium:* magnolias, yellow poplar; pawpaws; redbay, swampbay, sassafras, pondspice; Florida anise

EUDICOTS

- Proteales, Saxifragales: Platanaceae; Hamamelidaceae, Altingiaceae: *Platanus; Hamamelis, Liquidambar:* sycamore; witch hazel, sweetgum
- Malpighiales: Euphorbiaceae, Salicaceae, Rhizophoraceae: *Triadica; Populus, Salix; Rhizophora:* Chinese tallow; willows, cottonwoods; red mangrove

*Field Laboratory: Identification of Trees and Plant Communities

Week of Aug 31
Lecture: Diversity of Trees

- Fabales: Fabaceae: *Acacia, Albizia, Robinia, Gleditsia, Cercis:* acacias, mimosas, locusts, redbud
- Rosales: Rosaceae, Rhamnaceae, Ulmaceae, Celtidaceae, Moraceae: *Amelanchier, Crataegus, Malus, Prunus; Rhamnus; Planera, Ulmus; Celtis; Broussonetia, Morus:* serviceberries, hawthorns, crabapples, plums, cherries; Carolina buckthorn; elms; hackberries; mulberries

*Field Laboratory: Identification of Trees and Plant Communities

Week of Sep 7
Labor Day Holiday – Mon, Sept 7
Lecture: Diversity of Trees

- Fagales: Fagaceae: *Castanea, Fagus, Quercus:* chestnuts, chinkapins, beeches, oaks

*Field Laboratory: Identification of Trees and Plant Communities

Week of Sep 14
Lecture: Diversity of Trees
Lecture: Diversity of Trees

- Fagales (continued): Betulaceae, Myricaceae, Juglandaceae: *Alnus, Betula; Morella, Myrica; Carya, Juglans:* alder, birches; bayberries; hickories, walnuts

*Field Laboratory: Identification of Trees and Plant Communities

Week of Sep 21
Lecture: Diversity of Trees

- Myrtales: Combretaceae: *Combretum, Laguncularia:* buttonwood, white mangrove
- Malvales: Malvaceae: *Tilia:* basswoods
- Sapindales: Rutaceae, Meliaceae, Anacardiaceae, Sapindaceae: *Poncirus, Ptelea, Zanthoxylum; Melia; Rhus, Metopium, Schinus, Toxicodendron; Acer, Aesculus, Sapindus:* mockorange, wafer ash, prickly ashes; Chinaberry; sumacs, poisonwood, Brazilian pepper; maples, buckeyes, soapberry

*Field Laboratory: Identification of Trees and Plant Communities

Week of Sep 28
Lecture: Diversity of Trees
- Cornales: Hydrangeaceae, Cornaceae: *Philadelphus; Cornus, Nyssa:* mock oranges; dogwoods, gums
- Ericales: Sapotaceae, Theaceae, Ericaceae, Ebenaceae, Cyrillaceae, Styraceae, Symplocaceae: *Sideroxylon; Gordonia, Stewartia; Kalmia, Lyonia, Oxydendrum; Diospyros; Cliftonia, Cyrilla; Halesia, Styrax; Symplocos:* buckthorns; loblolly bay, silky camellia; mountain laurel, lyonias, sourwood; persimmon; titis; silverbells, storaxes; sweetleaf

*Field Laboratory: Identification of Trees and Plant Communities

Week of Oct 5 / *Midterm date – Thurs, Oct 8*
Lecture: Diversity of Trees
- Gentianales: Rubiaceae: *Cephalanthus, Pinckneya:* buttonbush, feverbark
- Lamiales: Oleaceae, Bignoniaceae, Avicenniaceae: *Chionanthus, Fraxinus, Ligustrum, Osmanthus; Catalpa; Avicennia:* graybeard, ashes, ligustrums, wild olive; catalpas; black mangrove
- Aquifoliales: Aquifoliaceae: *Ilex:* hollies
- Apiales: Apiaceae: *Aralia:* devil's walking stick
- Dipsacales: Adoxaceae: *Sambucus, Viburnum:* elderberries, viburnums

*Field Laboratory: Identification of Trees and Plant Communities

Week of Oct 12
Fall Break – Mon–Tues, Oct 12–13
Lecture: Introduction to Forest Ecology
- Ecosystems and communities
- Mycorrhizae
- Ecological succession and fire

*Field Laboratory: Identification of Trees and Plant Communities

Week of Oct 19
Lecture: Major Forest Communities of North America
- Recapitulation and Classification of Communities Encountered on Field Trips

*Field Laboratory: Quantitative Characterization of a Forest Community

Week of Oct 26
Lecture: Major Forest Communities of North America
- Major Forest Communities of Eastern North America

*Field Laboratory: Quantitative Characterization of a Forest Community

Week of Nov 2
Lecture: Major Forest Communities of North America
- Major Forest Communities of Western North America

*Field Laboratory: Quantitative Characterization of a Forest Community

Week of Nov 9
Lecture: Reproductive Cycles of Trees
- Reproduction in Pine
- Reproduction in Oak

*Laboratory: Reproduction in Pine and Oak

Week of Nov 16
Lecture: Anatomy and Development of Trees
- Primary and Secondary Growth of Roots and Stems

*Laboratory: Primary and Secondary Growth of Roots and Stems

Week of Nov 23
- **Primary and Secondary Growth of Roots and Stems**

Thanksgiving Holiday – Wed–Fri, Nov 25–27
*No lab this week

Week of Nov 30
Lecture: Anatomy and Development of Trees
- Primary and Secondary Growth of Roots and Stems
- Wood Anatomy
- Dendrochronology

*Laboratory: Wood Anatomy of Pine, Oak and Basswood

Week of Dec 7
***Last class day** – Mon, Dec 7*
***Final Examination** – Tues, Dec 8, 10:15AM-12:15PM*

BIOL 3610/5610 – Dendrology – Field Trip and Laboratory Schedule – Fall 2015

Friday, 08/21/2015, 11:00AM-1:50PM – VSU campus

Friday, 08/28/2015, 11:00AM-1:50PM – South Forty, Valdosta, GA

Saturday, 08/29/2015, 8:00AM-5:00PM – Greenwood/Arcadia Plantation, Thomas Co., GA

Friday, 09/04/2015, 11:00AM-1:50PM – VSU campus

Friday, 09/11/2015, 11:00AM-1:50PM – Langdale Park, Lowndes Co., GA

Friday, 09/18/2015, 11:00AM-1:50PM – Lake Louise Field Station (LLFS), Lowndes Co., GA

Friday, 09/25/2015, 11:00AM-1:50PM – Grand Bay WMA, Lowndes Co., GA

Saturday, 09/26/2015, 8:00AM-5:00PM – Reed Bingham SP, Cook Co., GA

Friday, 10/02/2015, 11:00AM-1:50PM – VSU North Campus – Meet at 1:00PM at field house next to Billy Grant Baseball Field. Take Red Shuttle from Palms Shuttle Stop to Billy Grant Baseball Field parking lot. *Be punctual!*

Friday, 10/09/2015, 11:00AM-1:50PM – Withlacoochee River, vic. Clyattville, Lowndes Co., GA

Friday, 11:00AM, 10/16 – Monday, 9:00PM, 10/19 – Highlands Biological Station, Highlands, NC

Friday, 10/23/2015, 11:00AM-1:50PM – VSU campus [alt. Botany Lab. (BC 2040)]

Friday, 10/30/2015, 11:00AM-1:50PM – vic. Snake Nation Rd, Lowndes Co., GA

Friday, 11/06/2015, 11:00AM-1:50PM – LLFS, Lowndes Co., GA

Saturday, 11/07/2015, 8:00AM-9:00PM – Torreya State Park, vic. Chattahoochee, FL

Friday, 11/13/2015, 11:00AM-1:50PM – LLFS, Lowndes Co., GA

Friday, 11/20/2015, 11:00AM-1:50PM – LLFS, Lowndes Co., GA [alt. Botany Lab. (BC 2040)]

Friday, 12/04/2015, 11:00AM-1:50PM – LLFS, Lowndes Co., GA [alt. Botany Lab. (BC 2040)]

8/19/2015