

## BIOL 3610/5610 – Dendrology

Fall Semester 2021

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*Instructor:* Dr. Carter

*Office:* BC 1105      *Herbarium:* BC 1040

*Telephone:* (229) 333-5338

*e-mail:* Please use the mail tool in BlazeVIEW.

*Office Hours (BC 1040):* Mon & Wed 11:00 AM–12:30

PM; Thurs 1:00–3:00 PM; other times by  
appointment

### *Weekly Course Schedule*

Mon Lec AB 10:00–10:50 AM, BC 1024

Wed Lec AB 10:00–10:50 AM, BC 1024

Thurs Lab A 9:30 AM–12:20 PM, BC 2040

Fri Lec AB 10:00–10:50 AM, BC 1024

Lab B 11:00 AM–1:50 PM, BC 2040

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### **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.
- Various miscellaneous assessments will be given.
- Students will participate in service learning projects.
- Students will keep a course notebook.

### **Required Texts**

- 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.
- \*Elias, T.S. 1987. *The Complete Trees of North America*. Gramercy Publishing Company, New York. [\*Copies of this text have been placed on reserve in the library.]

### Miscellaneous Required Items

- Pencils or pens for recording notes, etc.
- Spiral bound notebook, convenient for field trips
- Hand-lens with lanyard
- 200 3X5 inch lined notecards for field quizzes

### 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 repellent 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

**COVID guidelines.** Following are University System of Georgia (USG) COVID guidelines as of 7/31/2021. All faculty, staff, and students are strongly encouraged to receive a COVID-19 vaccine. No student, faculty or staff member should be treated differently based on their COVID-19 vaccination status. Students should not be asked about their vaccine status and segregated in a classroom or from other instructor-student interactions (e.g., office hours, group work, field trips, labs, etc.) based on their vaccination status. Vaccination status can be used to determine whether or not a person should quarantine after a close contact with a person who tests positive for COVID-19. Masks/face coverings are not required on campus. Two exceptions may apply on campuses – health center/medical facility and public transit. Un-vaccinated individuals are strongly encouraged to continue wearing a mask or face covering. Institutions will return to campus in the fall with no social distancing measures. Un-vaccinated individuals are strongly encouraged to continue social distancing whenever possible. Additional information may be found at the following address: <https://www.valdosta.edu/campus-operations>.

This syllabus was developed using guidelines from the USG and the VSU administration, which assume face-to-face (F2F) classes, including both lecture and lab. On-line (remote) lectures will not be given. On-line exams will not be given.

**Participation and punctuality.** Regular participation and punctuality are expected for all scheduled meetings. The student is responsible for all material covered during lecture and all assignments and assessments. 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.

**BlazeVIEW D2L.** A variety of course resources and materials will be made available through BlazeVIEW, and it will also be used to post announcements and grades and to administer assignments, assessments, quizzes and exams. Students should log into BlazeVIEW daily in order to check for course announcements and assignments. The Mail tool in BlazeVIEW provides a convenient means for students to contact their instructor and one another, and it should always be used to communicate about matters relating to the course. To access BlazeVIEW, select the link under the Current Students tab on the Valdosta State University homepage. Students experiencing difficulties using BlazeVIEW should seek assistance through the VSU Information Technology HELP-Desk in Odum Library (telephone 245-4357).

**Field trips.** A separate schedule for field trips will be distributed during the first week of class.

**Lecture examinations.** At least two lecture examinations will be given during the semester, one of these prior to midterm. Collectively, these exams account for 200 points in determining the overall course grade.

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

**Tree identification quizzes.** From memory, the student will be required to identify by *family name*, *scientific name (binomial)*, and *common name* major native and naturalized locally occurring trees. These quizzes may be given outdoors on field trips or indoors, as circumstances require. Study specimens protected within plastic sleeves will be available for student use in the laboratory. Photographs of these specimens and specimens in the VSU Virtual Herbarium may be used for these quizzes to supplement living specimens. Collectively, the tree identification quizzes will account for 200 points in determining the overall course grade.

**Miscellaneous quizzes and assessments.** A number of miscellaneous quizzes and assessments will be given during the semester to be completed or submitted on-line through BlazeVIEW. These miscellaneous quizzes and assessments collectively will account for 200 points in determining the overall course grade.

**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.

**Citizen science service learning.** Each student will be required to participate in the Bioblitz at Grassy Pond, which is scheduled for Friday October 8<sup>th</sup> through Sunday October 10<sup>th</sup>, with the main event scheduled for Saturday October 9<sup>th</sup>. Details will be provided as specific plans are developed. This citizen science service learning activity accounts for 100 points in determining the overall course grade.

**Graduate credit.** Students registered for BIOL 5610 will have additional requirements in order to receive graduate credit for the course, generally a special project such as assisting the instructor during lab sessions. Graduate student performance on the special project will be graded and used along with the other factors in determining the final course grade. This project will be weighted as 200 points. Graduate students should meet with their instructor during the first week of the semester to discuss their project assignments.

**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 exams (collectively)	200 points
Final exam	200 points
Tree identification quizzes	200 points
Misc. quizzes and assessments	200 points
Course notebook	100 points
<u>Citizen science service learning</u>	<u>100 points</u>
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 exams (collectively)	200 points
Final exam	200 points
Tree identification quizzes	200 points
Misc. quizzes and assessments	200 points
Course notebook	100 points
Citizen science service learning	100 points
<u>Graduate student project</u>	<u>200 points</u>
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.

**Class conduct.** Students are expected to comport themselves courteously at all times during lecture and laboratory, and on-line. Disruptive behavior will not be tolerated, and students behaving in a disruptive manner will be referred to the Dean of Students for disciplinary action. Refer to the Student Code of Conduct, Appendix A in the *VSU Student Handbook*. Although not a requirement, students are urged to wear face masks when working indoors during lecture and laboratory, and when working in the laboratory outside of the scheduled laboratory period. Consumption of food or drink (including water) is prohibited in the laboratory and 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.

**Title IX Statement.** Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: Maggie Viverette, Director of the Office of Social Equity, titleix@valdosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31608, 229-333-5463.

**Students with disabilities.** Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V) and 229-375-5871 (VP). For more information, please visit VSU's Access Office.

**Student Opinion of Instruction (SOI).** At the end of the term, students are expected to complete an online SOI survey through SmartEvals. Students will receive email notification through their VSU email addresses when the SOI is available, generally at least one week before the end of the term. SOI responses are anonymous, and instructors and administrators will be able to access the results only after final grades have been submitted. Students who withdraw or drop a course will also be sent invitations to complete the Dropped Course Survey. Complete information about the SOIs, including how to access the survey, is available on the [SOI Procedures webpage](#).

### **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](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 16

#### First Class Day – Mon, Aug 16

Lecture:

Introduction to Course

What is a tree? What is a forest?

Overview of the Classification of Plants

\*Laboratory: Identification and Classification of Trees

### Week of Aug 23

What is a tree? What is a forest?

Overview of the Classification of Plants

\*Laboratory: Identification and Classification of Trees

### Week of Aug 30

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: Identification and Classification of Trees

### Week of Sep 6

#### Labor Day Holiday: Mon, Sep 6

Lecture: Diversity of Trees

#### Angiosperms

ANA GRADE

- Austrobaileyales: Schisandraceae [incl. Illiciaceae]: *Illicium*: Florida anise

MAGNOLIIDS

- Magnoliales, Laurales: Magnoliaceae, Annonaceae; Lauraceae, Calycanthaceae: *Liriodendron*, *Magnolia*; *Asimina*; *Persea*, *Sassafras*, *Litsea*; *Calycanthus*: magnolias, yellow poplar; pawpaws; redbay, swampbay, sassafras, pondspice; sweetshrub

MONOCOTS

- Arecales: Arecaceae: *Sabal*: cabbage palm

\*Laboratory: Identification and Classification of Trees

### Week of Sep 13

Lecture: Diversity of Trees

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
- Fabales: Fabaceae: *Acacia*, *Albizia*, *Robinia*, *Gleditsia*, *Cercis*: acacias, mimosas, locusts, redbud

\*Laboratory: Identification and Classification of Trees

### Week of Sep 20

Lecture: Diversity of Trees

- 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

\*Laboratory: Identification and Classification of Trees

### Week of Sep 27

Lecture: Diversity of Trees

- Fagales: Fagaceae: *Castanea*, *Fagus*, *Quercus*: chestnuts, chinkapins, beeches, oaks
- Fagales (continued): Betulaceae, Myricaceae, Juglandaceae: *Alnus*, *Betula*; *Morella*, *Myrica*; *Carya*, *Juglans*: alder, birches; bayberries; hickories, walnuts

\*Laboratory: Identification and Classification of Trees

#### **Week of Oct 4**

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*; *Elliottia*, *Kalmia*, *Lyonia*, *Oxydendrum*; *Diospyros*; *Cliftonia*, *Cyrilla*; *Halesia*, *Styrax*; *Symplocos*: buckthorns; loblolly bay, silky camellia; mountain laurel, lyonias, sourwood; persimmon; titis; silverbells, storaxes; sweetleaf

#### **Midterm: Thurs, Oct 7**

\*Laboratory: Identification and Classification of Trees

#### **Week of Oct 11**

##### **Fall Break: Mon – Tues, Oct 11 – 12**

Lecture: Diversity of Trees

- Myrtales: Combretaceae: *Combretum*, *Laguncularia*: buttonwood, white mangrove
- Malvales: Malvaceae: *Tilia*: basswoods

\*Laboratory: Identification and Classification of Trees

#### **Week of Oct 18**

Lecture: Diversity of Trees

- 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

\*Laboratory: Identification and Classification of Trees

#### **Week of Oct 25**

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

\*Laboratory: Identification and Classification of Trees

#### **Week of Nov 1**

Lecture: Diversity of Trees

- Aquifoliales: Aquifoliaceae: *Ilex*: hollies
- \*Laboratory: Identification and Classification of Trees

#### **Week of Nov 8**

Lecture: Diversity of Trees

- Apiales: Apiaceae: *Aralia*: devil's walking stick
- Dipsacales: Adoxaceae: *Sambucus*, *Viburnum*: elderberries, viburnums

\*Botany Laboratory: Development and Structure of the Woody Plant Body 1

#### **Week of Nov 15**

Lecture:

- Biogeography of Trees
- Abscission and Changing Leaf Color

\*Botany Laboratory: Development and Structure of the Woody Plant Body 2

#### **Week of Nov 22**

Lecture: Introduction to Forest Ecology

- Mycorrhizae
- Ecological Succession and Fire
- Threats to Trees and Communities

\*No lab this week

**Thanksgiving Holidays: Wed–Fri, Nov 24–26**

#### **Week of Nov 29**

Lecture: Major Forest Communities of North America

\*Botany Laboratory: Reproduction in Pine and Oak

#### **Mon, Dec 6, Last Class Day**

**Final Examination – Tues, Dec 7, 10:15 AM–12:15 PM**