

PLANT SYSTEMATICS – BIOL 3650/5650

Instructor: Dr. Carter

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Office Hours: Mon & Wed 10:00 AM – 12:30 PM, Fri
10:00 – 10:50 AM; other times by appointment

SPRING SEMESTER 2022

Weekly Lecture and Lab Schedule:

Mon	Lec AB	9:00–9:50 AM, BC 1024
Wed	Lec AB	9:00–9:50 AM, BC 1024
Thur	Lab A	2:00–4:50 PM, BC 2040
Fri	Lec AB	9:00–9:50 AM, BC 1024
	Lab B	12:00–2:50 PM, BC 2040

Course Description

A survey of the principles of plant systematics that includes identification, nomenclature, evolution, and classification within the plant kingdom, and a systematic survey of plant families, with emphasis on local representatives.

Pre-requisites: BIOL 1107K and BIOL 1108K

Contact hours: 150 mins lecture + 170 mins lab per week

Credit hours: 4 sem 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 systematics, including identification, nomenclature, classification, description, and the inference of evolutionary patterns from data. [B2; V4, 7]
- The student will demonstrate understanding of evolutionary processes and patterns as exemplified in the major plant groups. [B2; V4, 7]
- The student will demonstrate the ability to handle and analyze plant materials in the laboratory, herbarium, and field. [B1; V5, 7]
- The student will demonstrate the ability to work and use basic equipment effectively in the laboratory, herbarium, and field. [B1; V5, 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 in a regional floristic manual. [B1; V4, 5, 7]
- The student will demonstrate the ability to follow oral and written instructions effectively. [V3, 7]
- The student will demonstrate the ability to access course resources and complete assignments on-line using computer technology. [V3]
- The student will demonstrate the ability to complete assignments and examinations ethically. [V8]

Required Texts

– *Plant Systematics*, 4th Ed. (2016) by Judd et al., Sinauer Assoc., Inc. [abbrev. **PS** in course schedule].

– *Manual of the Vascular Flora of the Carolinas* (1968) by A.E. Radford, H.E Ahles & C.R. Bell, University of North Carolina Press, ISBN 978-0-8078-1087-3, HARDCOPY ONLY [abbrev. **RAB** in course schedule].

– *Introduction to Plant Taxonomy* (1955) by G.H.M. Lawrence. Macmillan Co. – Copies of this text will be made available to students for use during laboratory sessions [abbrev. **IPT** in course schedule].

– *Flora of the Southeastern United States* (2020) by A.S. Weakley. Univ. of North Carolina, Herbarium and North Carolina Botanical Garden, Chapel Hill – Available at <https://ncbg.unc.edu/research/unc-herbarium/flora-request/>, one may download, at no cost, the entire flora for the southeastern region or select a state, e.g., Georgia, to receive a subset of the whole flora [abbrev. **WF** in course schedule].

Other Required Items

- Notebook for recording notes in lecture and lab – A three-ring binder (2- or 3-inch spine) and loose-leaf lined notebook paper are recommended.
- Field notebook – An inexpensive Composition Book that normally costs <\$1 is recommended.
- Hand lens for use on field trips will be checked out to each student at the start of the semester and returned at the end of the semester.

Recommended Items and Practices

- Old clothes, including long pants, and sturdy shoes or boots for field trips
- Insect repellent (with DEET) 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

COURSE POLICIES & REQUIREMENTS

General statement. In order to complete this course successfully, one must be mindful of all policies relating to attendance, grading, etc. During the first week of class you will be assigned a quiz in BlazeVIEW in which you will be asked to affirm that you have read the course syllabus and understand all of the course policies detailed therein. Students who fail to complete and submit this quiz with an affirmative response by the published deadline (normally the end of the first week of class) will be subject to administrative withdrawal from the course. If any of the course policies is unclear, it is the student's responsibility to confer with the instructor during office hours for clarification. More information about BlazeVIEW may be found below.

Regular attendance of scheduled lecture and laboratory periods, daily preparation, and review are essential for success in this course. Face-to-face (F2F) attendance is expected, and provisions have not been made for on-line (remote) lectures. Students should prepare for each lecture session by reading the assigned sections from the textbook and other sources as assigned in the course syllabus and under Course Content in BlazeVIEW [BV]. Students should bring their textbooks to each scheduled lecture and laboratory period, since they will be used regularly during lecture and lab. Notes should be taken regularly during lecture and laboratory and should be used along with the text and materials made available through BlazeVIEW in studying for examinations.

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

Attendance, punctuality, participation and cooperation. Regular attendance, punctuality, participation and full cooperation 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 checked 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. Any assignments, assessments, quizzes, and exams that are not completed because of excused absence must be completed within one week of the date that the student returns to class. Students absent from more than 20% of the scheduled course or course activities are subject to failure in the course, as detailed under Academic Affairs > Absence Regulations in the VSU Undergraduate Catalog – <http://catalog.valdosta.edu/>. Furthermore, points may be deducted from the final course grade for unexcused tardiness or absence, and inadequate participation and cooperation. For COVID-related absences, students should complete the Self Report Form in the MyVSU portal and communicate with Student Health Services and inform the Dean of Students Office (DOSO). Additional information and recommendations about COVID can be found below.

Field trips. Activities and assessments completed during field trips normally cannot be made up; therefore, attendance of all regularly scheduled field trips is absolutely essential for success in the course. In addition to insect repellent and water and other items listed previously, students should bring their copy of the *Manual of the Vascular Flora of the Carolinas*, a hand lens, notebook, and pens or pencils on all field trips. Students should bring water, soft drinks, and food as needed, especially for the optional Saturday field trip(s). Students may earn bonus points by participating in the optional Saturday field trip(s). Participation in the extended three-day weekend field trip is normally a course requirement. Students who are unable to participate in this field trip must present a valid excuse to the instructor at least two weeks prior to the scheduled date of departure, which is subject to approval by the instructor. Students thusly excused from participation in the three-day weekend field trip will be required to complete an alternative assignment in lieu of the field trip. This due date for this assignment will be determined and announced by the instructor. Students who fail to participate in the three-day weekend field trip or who fail to complete the alternative assignment will receive a grade of zero for this component of the course. Normally, the weekend field trip will be an excursion to University of Georgia Marine Institute at Sapelo Island. A checklist of essential and recommended items will be provided for the weekend field trip. Lodging expenses will be paid by the Valdosta State University Foundation Price-Campbell Fund. However, students will be responsible for their meal expenses. Food for the class will be purchased collectively, and it is anticipated that the total meal cost for the weekend trip will be \$30. Thus, a *non-refundable* \$30 deposit will be collected from each student at least one week prior to departure, which will be used to purchase food. Because of uncertainties related to Covid, this three-day weekend field trip may not occur. Normally, a complete field trip schedule, including dates of the weekend trip, will be provided by the end of the second week of classes. Students will be required to wear a mask/face covering while traveling in close quarters in any university vehicle.

Lecture examinations. Several lecture exams will be given during the semester, at least one of these prior to midterm. All exams will be F2F. Collectively, the exams account for 40% of the course grade. Each lecture exam will be announced at least one week in advance.

Keying tests. Several keying tests will be given to measure proficiency determining the identify of unknown specimens using analytical dichotomous keys in the required floristic manual(s). Substantial lab time will be devoted to supervised determination of unknown specimens using these keys. It is essential that the student attend all labs and field trips to practice identification of specimens in order to develop proficiency with these

dichotomous keys. Collectively, the keying tests account for 30% of the course grade.

Plant collection. A collection of properly prepared and completely documented voucher specimens representing 50 different plant families (BIOL 3650 students) or 100 different plant families (BIOL 5650 students is required). This collection will account for 15% of the course grade and will be evaluated according to the following criteria: diversity, accuracy of determinations, quality of specimens, quality of field notebook data, and quality of labels. Specific details and instructions are provided in the documents posted in the BlazeVIEW Table of Contents.

Miscellaneous assessments. A number of course assessments will be given during the semester, which, collectively, will account for 15% of the final course grade. Miscellaneous assessments include laboratory reports, assignments, and quizzes. Some assessments will be graded pass/fail, some with letter grades, and some with numerical grades. Some assessments will be weighted more heavily than others (e.g., laboratory reports). Assessments completed in class or during lab generally cannot be made up. If a student is allowed to make up a missed assessment because of an excused absence, then the makeup assessment must be submitted within one week of the student returning to class. Unless otherwise instructed, out-of-class assessments are due at the beginning of the lecture or laboratory period one week after they are assigned. For all assessments submitted late, a penalty of one letter grade will be deducted, and an additional letter grade will be deducted for each additional work day the assessment is late. Late assessments should be handed directly to the instructor or given to the departmental secretary for placement in the instructor's mailbox in the Biology Department office, BC 2035. These penalties also apply to makeup assignments. Unless otherwise instructed, hardcopy of assessments must be submitted with your name (first name and last name), course number and title (BIOL 3650 – Plant Systematics), and due date centered in the upper half of the first page, and formatted as follows: 12-point Times New Roman font, double-spaced throughout, and one-inch margins (top, bottom, left, and right). If there is more than one page, then the pages must be stapled together with the staple in the upper left corner, and the pages numbered sequentially starting with "1" with page number centered at the bottom of each page. Additional instructions for laboratory reports will be provided via BlazeVIEW.

Grading. All grade appeals during the semester on any assessment, test, or exam must be made directly to the instructor by the student within one week of the date that the instructor returns hardcopy or electronically releases the graded item to the class. Grade appeals made after this deadline will neither be accepted nor considered. With regard to determination of the final grade, 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 demonstrated through attendance, participation, and cooperation. A ten-point grading scale is normally used (i.e., A=90-100, B=80-89, C=70-79, D=60-69, F=<60), and the final course grade will be determined as follows:

Lecture exams	40%
Keying tests	30%
Plant collection	15%
<u>Misc. assessments</u>	<u>15%</u>
TOTAL	100%

Academic integrity. Students are encouraged to work together and to learn from one another in an appropriate manner. Cooperation among students is especially encouraged in certain laboratory exercises and in study outside of laboratory and lecture. However, students should bear in mind that that most work ultimately must be done individually and independently. All examinations and tests are given to students individually and are to be completed independently. Cooperation by students on tests or examinations is

prohibited and constitutes cheating. Unless otherwise indicated, tests and examinations are taken strictly from memory without use of textbooks, laboratory manuals, notes, etc. Unless otherwise indicated, assignments 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.

Plagiarism. Recognition of and respect for the ownership of property is one of the distinguishing features of civilization. Ideas come from individuals and are effectively owned by their originators; thus, ideas are intellectual property. In the academic sphere, we frequently deal with the ideas of others, most often in published form. As with tangible property, intellectual property is subject to ownership and protection. Moreover, publication establishes ownership of intellectual property. It is essential that we respect the ideas and writing of others and that we scrupulously cite all sources of any and all ideas that are not our own.

Random House Webster's College Dictionary (2000) defines plagiarism as "the unauthorized use of the language and thoughts of another author and the representation of them as one's own." There are many forms of plagiarism. Perhaps the most blatant form is copying from some other source without citing that source. Other types of plagiarism include using a paper written by another and the improper citation of references. When paraphrasing, the author of the paraphrased material must be properly cited, and, when words are taken directly from another source, their author must be properly cited and the quotation must be placed within quotation marks for short quotations or in a separate paragraph with special indentation for longer quoted passages. [See note below on limitations of length for quoted passages.] Plagiarism is theft of intellectual property, and the simplest way to avoid plagiarism is to give credit where credit is due! For your guidance, the following statement from the Writing Tutorial Services website at Indiana University is useful.

To avoid plagiarism, you must give credit whenever you use

- another person's idea, opinion, or theory;
- any facts, statistics, graphs, drawings – any pieces of information – that are not common knowledge;
- quotations of another person's actual spoken or written words; or
- paraphrase of another person's spoken or written words.

Source: Writing Tutorial Services, University of Indiana, Bloomington; revised 8/11/11;

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>

It is imperative that laboratory reports and other assignments are your own original work. Plagiarism will not be tolerated, and any student caught plagiarizing shall receive a failing grade on the assignment. Please be forewarned that various web search engines may be used to check for plagiarism. It is each student's responsibility to read and comprehend the VSU Biology Department Plagiarism Policy posted at <https://www.valdosta.edu/colleges/arts-sciences/biology/documents/resources/PlagiarismPolicy.pdf>.

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 leave class or laboratory and will be referred to the Dean of Students for disciplinary action. Refer to the Student Code of Conduct in the *VSU Undergraduate Catalog*, accessible through <http://catalog.valdosta.edu/>. Consumption of food or drink is prohibited in the lecture room and the laboratory. 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.

Use of cellular telephones, pagers, and other such devices. Use of cellular telephones, pagers, or any similar remote communication device is prohibited during scheduled lectures and examinations. If students bring cellular telephones or 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.

Consumption of food and drink. The distraction factor aside, food and drink in laboratory pose certain health and safety risks for students and in lecture present problems for maintenance of the building. Therefore, consumption of food or drink (including water) is absolutely prohibited both during lecture and in the laboratory room. Bear in mind that food items or drink containers on desks, tables, benches, etc. in lecture rooms and laboratories create the appearance that these items are being consumed and will be treated accordingly by your instructor. Exceptions will be made to allow students to consume food and drinks (non-alcoholic) during field trips, so long as this does not interfere with the fulfillment of normal course obligations. However, it is the student's responsibility to insure that all food stuffs, paper and packaging, bottles and cans are removed from the vehicle and properly disposed.

Access to laboratory. Students will be granted access to the Botany Laboratory (BC 2040) after hours and during weekends via an access code that is entered into the punch pad on the lab door. Access to the laboratory after hours is a privilege; it is not a right. If problems occur with regard to safety, security, neatness, or general order in the lab, then this privilege will be revoked. It is up to each student to see that all equipment and materials are properly cared for and replaced for proper storage.

Additional requirement for graduate credit. In order to receive graduate credit (BIOL 5650 only), students are required to write a term paper. Those registered for BIOL 5650 should confer with the instructor about potential topics for the research paper early in the term. An outline is due by midterm.

Students with disabilities. Students requiring classroom accommodations or modifications because of documented disabilities should discuss this need with their instructor at the beginning of the semester. Disabled students who are not registered with the Access Office should contact the Access Office in Farber Hall, telephone (229) 245-2498, Video Phone (229) 375-5871.

Special considerations for Covid-19. This syllabus was developed using USG and VSU guidelines, which assume face-to-face (F2F) classes, including both lecture and lab. Following are University System of Georgia (USG) COVID guidelines as of 7/31/2021. All faculty, staff, and students are strongly encouraged to wear masks/face coverings in all buildings on campus. All faculty, staff, and students are strongly encouraged to receive COVID-19 vaccinations. 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 or 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, but two exceptions may apply – 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. Official VSU COVID Operating Guidelines can be found at <https://www.valdosta.edu/campus-operations>, and additional information about COVID-related absences and recommendations can be found at <https://www.valdosta.edu/academics/academic-affairs/guidance-on-student-absences.php>.

TENTATIVE COURSE SCHEDULE WITH READING ASSIGNMENTS

Week of Jan. 10

First Day of Class – Mon., Jan. 10
Introduction to the Course
Chapter 1: The Science of Plant Systematics (PS)
Chapter 2: Methods and Principles of Biological Systematics, Appendix 1 (PS)
Lab: Introduction to Lab & Herbarium (BV, PS–Appendix 2)

Week of Jan. 17

M.L. King Holiday – Mon., Jan. 17
Chapter 3: Classification and System in Flowering Plants: Historical Background (PS)
Lab: Building a Phylogeny from Morphological Characters Using SimpleClade I (PS, BV)

Week of Jan. 24

Chapter 4 (in part): Taxonomic Evidence: Structural & Biochemical Characters (PS, IPT)
Chapter 5: The Evolution of Plant Diversity (PS)
Lab: Building a Phylogeny from Morphological Characters Using SimpleClade II (PS, BV)

Week of Jan. 31

Chapter 6: Overview of Green Plant Diversity (PS)
Lab: Phylogenetic Trees I (PS, BV)

Week of Feb. 7

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Phylogenetic Trees II (PS, BV)

Week of Feb. 14

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Bryophytes – Morphology & Phylogeny (PS)

Week of Feb. 21

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Seedless Vascular Plants: Lycophytes & Monilophytes – Morphology (RAB, WF, IPT, PS)
Lab: Analysis of Plant Structure & Identification Using Dichotomous Keys in a Floristic Manual (RAB, WF, IPT, PS–Appendix 2)

Week of Feb. 28

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Gymnosperms – Morphology (RAB, WF, IPT, PS)
Midterm – Thurs., Mar. 3

Week of Mar. 7

Chapter 4 (in part): Taxonomic Evidence: Structural & Biochemical Characters (PS, IPT)
Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Introduction to Angiosperms (PS, RAB, WF, IPT)

Week of Mar. 14

Spring Break: Monday, Mar. 14 – Friday, Mar. 18

Week of Mar. 21

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of Mar. 28

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of Apr. 4

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of Apr. 11

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of Apr. 18

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of Apr. 25

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB, WF, IPT)

Week of May 2

Last Class Day – Mon., May 2
Final Exam – Fri., May 6, 8:00–10:00 AM