

PLANT SYSTEMATICS – BIOL 3650/5650

SPRING SEMESTER 2020

Instructor: Dr. Carter

Office: BC 1040 (Herbarium) or BC 1105

Telephone: 333-5759, ext. 5763

Office Hours: Mon & Wed 10:00-10:50 AM;
other times by appointment

Weekly Lecture and Lab Schedule:

Mon Lec AB 9:00–9:50 AM, BC 1025

Wed Lec AB 9:00–9:50 AM, BC 1025

Fri Lec AB 9:00–9:50 AM, BC 1025

Lab A 10:00 AM–12:50 PM, BC 2040

Lab B 1:00–3:50 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 course outcomes are 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 W.S. Judd et al., Sinauer Assoc., Inc. [ISBN 9781605353890]
[abbrev. PS in syllabus]

Manual of the Vascular Flora of the Carolinas, 1st Ed. (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 syllabus]

Supplementary References

An Introduction to Plant Taxonomy by Lawrence, 1955: Especially useful in matters of phytography, copies of this classic text will be checked out to students by your instructor and reclaimed at the end of the semester.

Other references and assigned readings will be provided electronically through BlazeVIEW.

Other Required Items

- Notebook for recording notes in lecture and lab
- A hand lens for use on field trips will be checked out to each student by your instructor early in the semester and reclaimed 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. ****Before the end of the first week of classes, after reading the course syllabus and comprehending the policies presented therein, log onto BlazeVIEW and use BlazeVIEW Mail to send a brief message to your instructor informing him that you have reviewed the course syllabus and understand all course policies.**** If any course policy is unclear, it is the student's responsibility to confer with the instructor 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. Students should occupy seats at the front of each row first and then in order from front to back of the lecture room, so that the front seats in the center rows are filled first. Points will be deducted from the final grade for students who refuse to comply with this seating arrangement. 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. 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, handouts, and other materials made available through BlazeVIEW in studying for examinations.

BlazeVIEW D2L. A variety of course resources and materials will be made available through BlazeVIEW, which will also be used to administer 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 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 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 available 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. Students who arrive more than 20 minutes late will be counted as absent. Early departure from lecture will be treated in the same way as tardy arrival. Students who depart lecture more than 20 minutes before the end of the period, without prior clearance from the instructor, will be counted as absent. Any scheduling problems or other extenuating circumstances necessitating chronic tardiness or early departure 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, tardiness, or early departure by the student does not insure that the absence, tardiness, or early departure 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 Academic Affairs > Absence Regulations in the VSU Undergraduate Catalog available at <http://catalog.valdosta.edu/>. Points will be deducted from the final course grade for excessive unexcused absence, tardiness, or early departure, and inadequate participation and cooperation.

Field Trips. Field trips are an essential part of this course. 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 the *Manual of the Vascular Flora of the Carolinas* [RAB], a hand lens, notebook, and pens or pencils on all field trips. Students should bring water, soft drinks, and food as needed for any optional Saturday field trips. Students may earn bonus points by meaningful participation on optional Saturday field trips. Participation in the extended three-day weekend field trip is a course requirement. Students who are unable to participate in this field trip must present a valid excuse to the instructor at least three weeks prior to the scheduled date of departure, which is subject to approval by the instructor. Students thusly excused from participation in the weekend field trip will be allowed to complete an alternative assignment in lieu of the field trip. This assignment is due one week after the scheduled date of return from the trip. Students who do not participate in the weekend field trip or complete the alternative assignment will receive a grade of zero for this component of the course. Normally, as circumstances permit, the weekend field trip would 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 normally 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 normally be collected from each student at least one week prior to departure, which will be used to purchase food for communal meals.

A complete field trip schedule, including dates of the weekend trip, will be provided before the end of the first week of classes.

Lecture Examinations. Several lecture exams will be given during the semester, at least one of these prior to midterm. Collectively, these 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 using analytical dichotomous keys in the *Manual of the Vascular Flora of the Carolinas*. Substantial lab time will be devoted to supervised determination of unknown specimens, using these keys. It is essential that the student attend lab and field trips regularly and practice identification of specimens in order to develop proficiency with the keys. Collectively, the keying tests account for 30% of the course grade.

Plant Collection. Each student will be required to prepare and submit a collection of at least 100 species, representing at least 40 vascular plant families. Early in the semester, a plant press will be checked out to each student by the instructor. It is the student's responsibility to take proper care of the plant press and to return it to the instructor in good condition prior to the end of the semester. Points will be deducted for an abused or lost plant press. The plant collection is due the last Friday of scheduled classes and will account for 20% of the course grade. Complete guidelines and instructions for the plant collection will be provided by your instructor.

Miscellaneous Assessments. A number of course assessments will be given during the semester, which, collectively, will account for 10% 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. Those completed in class or during lab are mostly unannounced and generally cannot be made up. 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. Do not slide laboratory reports or other assessments under the instructor's office or herbarium door. Such submissions will be counted as submitted whenever they are discovered by the instructor, not when the student says s/he slid it under the door. Unless otherwise instructed, hardcopy of the 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 or Calibri font, double-spaced throughout, and one-inch margins (top, bottom, left, and right), with only one side of the page printed. 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 detailed instructions and rubric will be provided for laboratory reports.

Grading. A ten-point grading scale is normally used (i.e., A=90-100, B=80-89, C=70-79, D=60-69, F=<60). The final course grade will be determined as follows:

LECTURE EXAMS 40% + KEYING TESTS 30% + PLANT COLLECTION 20% + MISC. ASSESSMENTS 10% = 100%

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.

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 any laboratory reports and other assignments you submit be 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: <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 and Similar Devices. Use of cellular telephones, pagers, or any similar remote communication device is prohibited during scheduled lectures and examinations, unless expressly authorized by your instructor. 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 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. It is the instructor's prerogative to dispose of any drink or food items or containers left on benches in the laboratory. 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 Requirements for Graduate Credit. In order to receive graduate credit (BIOL 5650 only), students are required to prepare and submit a plant collection of at least 50 vascular plant families and 125 species.

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, VP (229) 375-5871.

Student Opinion of Instruction Survey

At the end of the semester, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available through SmartEvals. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week

before the end of the term). SOI responses are anonymous to instructors and administrators, who will be able to access results only after final grades have been submitted. Before final grade submission, instructors will not be able to see any responses, only the percentage of students who have or have not completed the SOIs. While instructors will not be able to see student names, an automated system will send a reminder email to those who have not yet completed the SOIs. 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](#).

TENTATIVE COURSE SCHEDULE WITH READING ASSIGNMENTS

Week of Jan. 13

First Day of Class – Mon., Jan. 13
Introduction to the Course
Chapter 1: The Science of Plant Systematics (PS)
Chapter 2: Methods and Principles of Biological Systematics (PS)
Lab: Introduction to the Herbarium (Handout)

Week of Jan. 20

M.L. King Holiday – Mon., Jan. 20
Chapter 3: Classification and System in Flowering Plants: Historical Background (PS)
Lab: Building a Phylogeny from Morphological Characters Using SimpleClade (PS & Handout)

Week of Jan. 27

Chapter 5: The Evolution of Plant Diversity (PS)
Lab: Phylogenetic Trees (PS & Handout)

Week of Feb. 3

Chapter 6: Overview of Green Plant Diversity (PS)
Lab: Bryophytes – Morphology & Phylogeny (PS & Handout)

Week of Feb. 10

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

Week of Feb. 17

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Seedless Vascular Plants: Lycophytes & Monilophytes – Morphology & Phylogeny (PS & Handout)
Saturday, 22 February 2020: Field Trip to Wolf Creek NA, Grady County, Georgia (RAB)

Week of Feb. 24

Chapter 7: Lycophytes, Ferns & Gymnosperms (PS)
Lab: Gymnosperms – Phylogeny, Morphology, Analysis of Plant Structure, & Identification Using Dichotomous Keys in a Floristic Manual (PS, RAB & Handout)

Week of Mar. 2

Chapter 4 (in part): Taxonomic Evidence: Structural & Biochemical Characters (PS)
Midterm – Thurs., Mar. 5
Friday, March 6 – Sunday, March 8: Extended Field Trip – Jekyll Island, Georgia

Week of Mar. 9

Chapter 4 (in part): Taxonomic Evidence: Structural & Biochemical Characters (PS)
Lab: Analysis & Identification of Unknowns (RAB)

Week of Mar. 16

Spring Break: Mon., Mar. 16 – Fri., Mar. 20

Week of Mar. 23

Chapter 4 (in part): Taxonomic Evidence: Structural & Biochemical Characters (PS)
ASB Meeting, Mar. 26 – Mar. 27
Lab: TBA

Week of Mar. 30

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

Week of Apr. 6

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

Week of Apr. 13

Chapter 8: Phylogenetic Relationships of Angiosperms (PS)
Lab: Analysis & Identification of Unknowns (RAB)
Saturday, 18 April 2020: Field Trip to Doerun Pitcherplant Bog NA, Doerun, Georgia (RAB)

Week of Apr. 20

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

Week of Apr. 27

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

Week of May 4

Last Class Day – Mon., May 4
Final Exam – Fri., May 8, 8:00 – 10:00 AM