

BIOL 2230 – GENERAL BOTANY

FALL SEMESTER 2009

Instructor: Dr. Carter

Office: BC 1105 *Telephone:* 229/333-5759, ext. 5763

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

Office Hours: BC 1040 or BC 1105

Mon. 9:00 – 11:00 AM

Tues. and Thurs. 8:00 – 9:00 AM

Other times by appointment

Weekly Course Schedule

Monday	Lab A	12:00 – 2:50 PM, BC 2040
Tuesday	Lec AB	9:30 – 10:45 AM, BC 1023
Tuesday	Lab B	2:00 – 4:50 PM, BC 2040
Thursday	Lec AB	9:30 – 10:45 AM, BC 1023

Course description. Survey of plants, emphasizing evolution, homologous variation, and reproductive cycles of the major groups and development, structure, and function as represented by the seed plants.

Prerequisite: BIOL 2010 with a grade of “C” or higher or consent of instructor.

Contact hours: 150 mins lecture & 170 mins lab per week.

Credit hours: 4 sem hrs credit.

Course objectives. The student should gain a basic understanding of life history, ecology, and evolution of the major plant groups and development, structure, function, and reproduction of the typical seed plant.

Course Outcomes linked to Biology Department Educational Outcomes (B) and Valdosta State University General Education Outcomes (V)

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| <ol style="list-style-type: none"> 1. The student will demonstrate understanding of cell theory and the structure and function of the typical plant cell. [B 3; V 4, 7] 2. The student will demonstrate understanding of the organization of plants from the level of cells through tissues, tissue systems and organs. [B 3; V 4, 7] 3. The student will demonstrate understanding of developmental patterns and processes of plants. [B 4; V 4, 7] 4. The student will demonstrate understanding of the relationships between structure and function in plants. [B 4; V 4, 7] 5. The student will demonstrate understanding of the major effects and physiological mechanisms of growth regulators (hormones) in plants. [B 4; V 4, 7] 6. The student will demonstrate understanding of the mechanisms for procurement of mineral ions by plants and mineral nutrition. [B 4; V 4, 7] 7. The student will demonstrate understanding of the physiological mechanisms involved in the uptake and transport of water and the translocation of food by plants. [B 4; V 4, 7] 8. The student will demonstrate understanding of the basic principles of systematics and the inference of evolutionary patterns from data. [B 2; V 4, 7] 9. The student will demonstrate understanding of evolutionary processes and patterns in the major plant groups. [B 2; V 4, 7] 10. The student will demonstrate understanding of life histories, reproductive cycles, and ecological relationships of the major plant groups. [B 2, 5; V 4, 7] 11. The student will demonstrate understanding of the relationships between plants and humans across | <ol style="list-style-type: none"> cultures. [V 2, 4, 7] 12. The student will demonstrate understanding of the interrelationships among plants, micro-organisms, and animals in the functioning of ecosystems. [B 5; V 4, 7] 13. The student will demonstrate understanding of the fundamental roles of plants in ecosystems, including the production of food energy, replenishment of oxygen, and water and nitrogen cycles. [B 5; V 4, 7] 14. The student will demonstrate understanding of spatial and temporal patterns of variation in plant community structure and the determinants of such patterns, including concepts of biome, community and succession. [B 5; V 4, 7] 15. The student will formulate hypotheses, collect and analyze data, and present results in the standard format of a scientific paper. [B 1; V 4, 5, 7] 16. The student will demonstrate the ability to handle and analyze plant materials in the laboratory. [B 1; V 5, 7] 17. The student will demonstrate the ability to work and use basic equipment effectively in the laboratory. [B 1; V 4, 5, 7] 18. The student will demonstrate the ability to work safely in the laboratory. [V 4, 5, 7] 19. The student will demonstrate comprehension of basic concepts and the ability to use scientific terminology accurately through effective oral and written communication. [B 1; V 4, 5, 7] 20. The student will demonstrate the ability to follow oral and written instructions effectively. [V 4, 7] 21. The student will demonstrate the ability to access course resources and complete assignments on-line using computer technology (i.e., BlazeVIEW). [V 3] 22. The student will demonstrate the ability to complete assignments and examinations ethically. [V 8] |
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Course materials

Required text: *Biology of Plants* by Raven, P.H., R.F. Evert & S.E. Eichhorn, 2005, 7th Ed., W. H. Freeman & Co.¹

Required lab manual: *General Botany Laboratory Exercises* by R. Carter, 2005, provided free-of-charge through BlazeVIEW¹

Required materials & supplies: large (3 inch spine) 3-ring binder for lecture and lab notes, 3H or 4H drawing pencil with eraser, and biology filler drawing paper.

1. Students are responsible for bringing their textbook and their lab manual to each scheduled lecture and laboratory period.

Course Requirements and Policies

Prerequisite. BIOL 2010 with a grade of “C” or higher or consent of instructor. *Inform your instructor immediately, if you have not met this prerequisite or are unsure about it.*

Use of BlazeVIEW as a course supplement.

BlazeVIEW will be used to make a variety of course resources and materials available, 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 and to take course assessments. Also, the Mail tool in BlazeVIEW provides a convenient means for students to contact one another and their instructor and is the preferred means of communicating about matters relating to the course. To access BlazeVIEW, select the BlazeVIEW link under Quick Links on the left side of the Valdosta State University homepage. Students experiencing technical difficulties using BlazeVIEW should seek assistance through the VSU Microcomputing & System Services HELP-Desk located in Odum Library (telephone 245-4357).

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 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.

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. Plagiarism is theft of intellectual property, and the simplest way to avoid plagiarism is to give credit where credit is due! 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.

<http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml>;
Copyright 2004; last updated 27 April 2004; last accessed 05 August 2007.

It is imperative that laboratory reports and papers be the student's own original work. Plagiarism will not be tolerated, and any student caught plagiarizing shall receive a failing grade on the report or assignment. Please be forewarned that various web search engines will be used to check for plagiarism.

Attendance, participation, and attitude. Regular attendance of all scheduled lectures and labs and punctuality are expected. The student is responsible for all material missed regardless of the reason for absence. Normally, attendance will be taken during each scheduled lecture and laboratory period.

Each three instances of unexcused tardiness will be counted as one absence. Tardiness will not be excused without a written explanation from the student and a determination by the instructor that the reason for tardiness is valid. Requests for excused tardiness must be submitted to the instructor in writing within 24 hours of the beginning of the period during which the student was late. It is the student's responsibility to initiate such requests. 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 or laboratory. Based upon the written explanation and associated documentation, the instructor will determine whether the reason for absence is valid and will excuse absences accordingly.

Students are reminded that it might not be possible to make up certain laboratory exercises, and, whenever possible, the student should clear an absence and request permission for a make-up with the instructor

prior to the actual absence. In accordance with Valdosta State University Absence Regulations on page 84-85 of the *2008-2009 Undergraduate Catalog*, students absent from more than 20% of the regularly scheduled lecture and laboratory periods are subject to failure in the course:

<http://www.valdosta.edu/catalog/0809/ugrad/index.shtml>.

Moreover, the final course grade may be lowered because of poor attendance, participation, or attitude.

Conduct in lecture and laboratory. 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 removed from the classroom and referred to the Dean of Students for disciplinary action. Refer to the Student Code of Conduct in the *VSU Student Handbook Volume II*:

<http://www.valdosta.edu/studentaffairs/StudentHandbook.shtml>.

Students should be punctual for scheduled lecture and laboratory meetings. Except in special situations (e.g., emergency), students should not depart from lecture before being dismissed. Students anticipating early departure from lecture should seat themselves near an exit in the back of the lecture room. Students are to direct their full attention to lecture and laboratory and are to refrain from unwarranted discourse. Behavior contrary to these guidelines is disruptive and may result in lowering of the final grade.

Valid identification. It is the student's responsibility to have her/his VSU identification card in his/her possession at all times during class and laboratory periods, especially during scheduled examinations. Normally, each student will be asked to present her/his valid VSU photo-identification card in order to take an examination.

Consumption of food and drink. The distraction factor aside, food and drink in laboratory pose certain health and safety risks to students and in lecture present problems for maintenance of the building. Therefore, the consumption of food or drink (including water) is absolutely prohibited during lecture and laboratory. 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.

Use of cellular telephones, pagers, and other such devices. Use of cellular telephones, pagers, or any similar remote communication device is not permitted during scheduled lectures, labs, or 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 or laboratory 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 or lab immediately.

General suggestions. Regular attendance of scheduled lecture and laboratory periods and daily preparation and review are essential for success. Students should prepare for each lecture and laboratory session by reading the assigned sections from the textbook and laboratory manual and any additional supplementary material made available by the instructor. Students should bring their textbook to each scheduled lecture and laboratory period, since illustrations and diagrams from the text will be used regularly during lecture and lab. Notes should be taken regularly during lecture and lab and should be used along with the text and lab manual in studying for examinations.

General comments on laboratory. Success in the laboratory is largely dependent upon student interest, curiosity, and assumption of responsibility for independent learning. Material presented during lecture should be studied along with laboratory material in order to integrate the two learning experiences. Laboratory work emphasizes careful observations and the opportunity to repeat and confirm the work of others. It also provides for some experimentation and gathering of data. To gain the most from laboratory experiences, students should be regular and punctual in attendance, especially to receive directions and instructions given by the instructor at the beginning of each laboratory period. Students also benefit by using the textbook frequently during each laboratory session, by keeping descriptive notes on observations, by recording data accurately and systematically, and by making diagrams and drawings.

The General Botany course is designed so that lecture and laboratory compliment one another. Although

some asynchrony is inevitable, in most cases, major topics are covered in lecture prior to lab. It is the student's responsibility to refer to the laboratory schedule and to read the appropriate laboratory exercise(s) before each lab period. The assigned laboratory exercise(s) for each scheduled lab is(are) indicated in the Course Outline (below) and the Laboratory Schedule. In addition to the appropriate printed laboratory exercise(s) from the lab manual, students should bring textbook, notebook, and writing and drawing tools to each scheduled laboratory session.

Lecture examinations. Three equally weighted lecture exams will be given, which account for 60% of the course grade. Regular attendance of lecture and laboratory sessions, good note taking, daily study, and timely completion of assessments are essential in preparing for lecture examinations. Lecture exam dates are provided in the course outline.

Laboratory examinations. A midterm laboratory exam will be given prior to the midterm date, and a *comprehensive* final laboratory exam will be given at the end of the semester. The midterm and final laboratory examinations account for 10% and 15% of the course grade, respectively. Laboratory exam dates are provided in the course outline.

Miscellaneous assessments. A variety of miscellaneous course assessments will be given during the semester. Collectively, the miscellaneous assessments account for 10% of the course grade. Miscellaneous assessments include pop quizzes, on-line assessments through BlazeVIEW, study guides, labeled lab diagrams and drawings. Some assessments will be graded Satisfactory / Unsatisfactory, some with letter grades, and some with numerical grades. Some will be completed in class during lecture or laboratory periods and some outside of class. In-class assessments are mostly unannounced and most cannot be made up. Including on-line assessments, 20-30 miscellaneous assessments are normally given during the semester.

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 posting of the exam or grade in question or returning of the graded quiz or assignment. In determining the final course grade, a 10-point scale is

normally used (i.e., 90–100=A; 80–89=B; 70–79=C; 60–69=D; <60=F) and the final course average calculated as follows.

<i>Lecture exams</i>	60%
<i>Midterm lab exam</i>	10%
<i>Final lab exam</i>	15%
<i>Lab reports</i>	5%
<i>Miscellaneous assessments</i>	<u>10%</u>
<i>Total</i>	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 attitude as shown through attendance, participation, and cooperation.

Laboratory reports. Normally, two to three laboratory reports are assigned. Collectively, the laboratory reports account for 5% of the course grade. For certain laboratory exercises, students will be instructed to gather and analyze data and write laboratory reports as laboratory groups. Each student should participate in all phases of these laboratory exercises, and any departure from this requirement constitutes cheating. Obviously, if a student is absent during a laboratory period when data is gathered, then the student cannot have participated in all phases of the laboratory exercise. Students absent from a laboratory session should not participate in subsequent phases of report preparation (i.e., data analysis and report writing) without having made up the actual laboratory exercise. Under no circumstances should students be included as authors of laboratory reports in which they did not participate fully in all phases of preparation. Cases of students pressuring peers to credit them with work they did not actually do should be reported to the instructor.

Instructions for writing the laboratory report are provided in Appendix B of the lab manual. *Laboratory reports not written according to instructions will be returned without benefit of the instructor's review.* A standard cover sheet (Appendix C, lab manual) shall be affixed to each laboratory report. The cover sheet shall be signed by each group member who has fully participated in all phases of preparation of the laboratory report, and a signature on the cover sheet is an indication of full

participation by each signatory. Laboratory reports are normally due one week after completion of the laboratory exercise.

Normally, laboratory reports will be collected, reviewed, redacted, marked, and tentatively graded by the instructor, then returned to the student(s) for revision, and then graded again after revision. Each laboratory report grade will be determined by averaging the initial, tentative grade and the final, post-revision grade. *Students must return the initial version of the laboratory report along with the cover sheet when revisions are submitted.*

Students are reminded that group preparation of laboratory reports is more likely the exception than the rule, and that such co-operation will likely be forbidden in other courses and thus would constitute cheating in these courses. In other words, just because it is allowed in one course does not mean it will be in another.

Access to laboratory. Students will be granted access to the General Botany Laboratory (BC 2040) after hours until 11:00 PM on weekdays and until 9:00 PM during weekends. Frequently, the outer door near the northeast corner of the Bailey Science Center is unlocked after hours; check this door first. If this and other outside doors to Bailey Science Center are locked, then students should contact the University Police Department or a university police officer and present a valid student identification card upon request in order to gain entry into the building. A numerical code will be provided by your instructor, which will enable access to the General Botany Laboratory. 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 materials, slides, microscopes, etc. are properly cared for and replaced for proper storage.

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 Access Office for Students with Disabilities should contact the Access Office, Farber Hall, telephone 229/245-2498 (V/VP) and 229/219-1348 (TTY).

TENTATIVE COURSE OUTLINE WITH ASSIGNED READINGS FROM TEXT AND LABORATORY MANUAL

Week of 17 Aug.

- 1.0.Introduction to Course; Syllabus
- 1.1.Introduction to Botany; Chap. 1, pp. 1-13
- 1.2.Plant Cell; Chap. 3, pp. 35-70

*Lab assignment: Introduction to Herbarium and Plant Propagation (handouts provided by instructor)

Week of 24 Aug.

- 1.3.Osmosis & Water Relations; Chap. 4, pp. 71-87
- 1.4.Early Development; Chap. 22, pp. 497-509

*Lab assignment: Laboratory Technique & the Microscope and Introduction to Vegetative Plant Body

Week of 31 Aug.

- 1.5.Cells & Tissues; Chap. 23, pp. 510-527

*Lab assignment: The Plant Cell & Water Relations and Early Development of Seed Plant

Week of 07 Sep.

Labor Day Holiday: Mon., 07 Sep.

- 1.6.Root Structure & Development; Chap. 24, pp. 528-546

*Lab assignment: *Labor Day Holiday (no lab)*

Week of 14 Sep.

- 2.1.Shoot Primary Structure & Development; Chap. 25, pp. 547-579

Unit 1 Lecture Exam – Thurs., 17 Sep.

*Lab assignment: Cells & Tissues

Week of 21 Sep.

- 2.2.Secondary Growth Stems; Chap. 26, pp. 580-601

*Lab assignment: The Root

Week of 28 Sep.

- 2.3.Plant Nutrition; Chap. 29, pp. 645-666

*Lab assignment: The Herbaceous Stem

Week of 05 Oct.

Midterm Laboratory Exam – Tues., 06 Oct.

- 2.4.Movement of Water & Solutes; Chap. 30, pp. 667-686

Midterm date: Thurs., 08 Oct.

*Lab assignment: The Woody Stem

Week of 12 Oct.

- 2.5.Plant Hormones; Chap. 27, pp. 603-621
- 2.6.Plant Growth; Chap. 28, pp. 622-644

*Lab assignment: The Leaf

Week of 19 Oct.

Fall Break: Mon.-Tues., 19-20 Oct.

- 3.1.Plant Systematics; Chap. 12, pp. 219-237

*Lab assignment: *Fall Break (no lab)*

Week of 26 Oct.

- 3.2.Bryophytes; Chap. 16, pp. 345-367

Unit 2 Lecture Exam – Thurs., 29 Oct.

*Lab assignment: Field Trip to Lake Louise

Week of 02 Nov.

- 3.3.Seedless Vascular Plants; Chap. 17, pp. 368-407

*Lab assignment: The Bryophytes

Week of 09 Nov.

- 3.4.Gymnosperms; Chap. 18, pp. 408-433

*Lab assignment: The Seedless Vascular Plants

Week of 16 Nov.

- 3.5.Angiosperms I; Chap. 19, pp. 434-451

*Lab assignment: The Gymnosperms

Week of 23 Nov.

- 3.6.Angiosperms II; Chap. 20, pp. 452-474

- 3.7.Plants & People; Chap. 21, pp. 475-495

Thanksgiving Holiday: Wed-Fri., 25-27 Nov.

*Lab assignment: The Angiosperms I

Week of 30 Nov.

- 3.8.Dynamics of Communities & Ecosystems; Chap. 31,

On the Web: www.whfreeman.com/raven

- 3.9.Global Ecology; Chap. 32, On the Web:

www.whfreeman.com/raven

Unit 3 Lecture Exam – Thurs., 03 Dec.

*Lab assignment: The Angiosperms II

Week of 07 Dec.

Final Laboratory Exam – Final Exam Period, Thurs., 10 Dec., 10:15AM-12:15PM
