

BZ-120, Principles of Plant Biology

Course Information, Fall 2007

General Information

Instructor: Dr. David Steingraeber
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Office hours: Monday 1-2 PM or by appointment

BZ-120 (Principles of Plant Biology) is a one-semester introductory survey of botany that is intended primarily for students majoring in botany-related areas, such as Biology, Zoology, Forestry, Range Science, Agronomy, Horticulture, Natural Resources Management, etc. Most of these majors require additional coursework in botany, and this course is a prerequisite for most of these intermediate- or upper-level classes in botany. Consequently, BZ-120 is meant to be an in-depth overview of the science of botany.

Please be aware that there is another introductory botany course, BZ-104, Basic Concepts of Plant Life (with an associated lab course, BZ-105), which is meant to provide a less detailed overview of botany for non-science students. If BZ-120 is not required for your major and you do not plan to take additional courses in botany, you would probably be happier and better served by taking BZ-104 and BZ-105, which also fulfill the All-University Core Curriculum requirements. If you decide to stay in BZ-120, please realize that this course is meant for botanically oriented students and therefore covers subjects in much more depth than BZ-104 and BZ-105.

Course Format

All students in BZ-120 must be registered in Section 001 as well as in one of the Laboratory Sections (L01-L08). Lectures are held MWF at 3:00 PM in A102 Clark. Each lab section meets for a three-hour block on Wednesday, Thursday, or Friday in Room 209 of Yates Hall. Attendance in both lecture and laboratory is essential. Although attendance will rarely be taken in lecture, it is essential that you be there to understand what is covered, especially since I will often use hand-outs and slides to illustrate the lectures. A good and thorough set of lecture notes will be your most important resource when studying for exams. **Attendance will be taken in the laboratory sections**, and you will be expected to **attend and participate fully** in the laboratory exercises.

Textbooks

The **recommended** textbook (purchase not required, but you should have access to a copy for reference/consultation) for BZ-120 is *Biology of Plants* (7th Edition) by Raven, Evert & Eichhorn. The book provides excellent and well-illustrated coverage of the topics we will cover, but sometimes in more depth than is necessary for our purposes. Consequently, you will be using the book primarily as a reference for material covered in lecture. The pages in the text corresponding to individual lecture topics are given on the syllabus. If you have access to an earlier edition of *Biology of Plants* it will probably suffice, but the page numbers will be different. Several copies of *Biology of Plants* are on reserve in the Morgan Library.

The **required** laboratory manual (*Principles of Plant Biology- BZ-120*) is also available at the bookstore. **You will need to bring this manual with you to lab beginning week 2.** It contains all of the lab exercises that will be performed.

Examinations and Grading

Your grade at the end of the semester will be based on the total number of points you accumulate in lecture exams and lab assignments/reports/quizzes/exams over the course of the semester. Lecture examinations worth 100 points each will take place in class on Sept. 14, Oct. 12, and Nov. 9. The final exam, which is partially cumulative and will count "double" relative to one of the other exams (i.e., the percentage score will be counted twice), will be held on Dec. 14 at 7:00 AM. **Your lowest lecture exam score (calculated on a percentage basis) will be dropped before final grades are calculated.** (If the final exam is your lowest grade, the percentage score will only be counted once, rather than twice.) In other words, you may miss one of the three 100 point exams (the score from that exam will be dropped), but **the final exam is not optional; all students must take the final exam. No make-up exams will be given, and no final exams will be given earlier or later than the assigned time.** The intent of allowing you to drop your lowest lecture exam score is to allow for unforeseen circumstances such as medical or familial emergencies that interfere with taking an exam.

Your performance in the laboratory portion of the class will be assessed by lab quizzes and reports/assignments, which will be worth a total of 200 points over the course of the semester. Thus, it is possible to attain a total of 600 points (400 from lecture exams, 200 from lab). In addition, since the course is recognized by the University as a Core Curriculum laboratory course, **it is necessary for you to have a passing grade in the laboratory portion of the class in order to pass the class.** This is usually no problem if you regularly attend and participate in the laboratory. Assuming you pass the lab portion of the class, your letter grade will be based on the percentage of the 600 available points that you attain.

If you attain >90% of the 600 total points, you will receive an "A".

If you attain >80% of the 600 total points, you will receive at least a "B".

If you attain >70% of the 600 total points, you will receive at least a "C".

If you attain >60% of the 600 total points, you will receive at least a "D".

Academic dishonesty of any kind will not be tolerated in this class and the penalties are severe, i.e., failure in the class and referral to the University's Office of Conflict Resolution & Student Conduct Services.

BZ-120 Schedule, Fall 2007

Week 1 Aug. 20 M Aug. 22 W Aug. 24 F	Introduction (pp. 1-13; 219-223) Introduction; Cell Structure (pp. 35-47) Cell Structure (pp. 47-58; 67-69)	Lab Topic: Introduction
Week 2 Aug. 27 M Aug. 29 W Aug. 31 F	Cell Structure (pp. 229-230) Diffusion & Osmosis (pp. 71-78) Transport Across Membranes (pp. 78-87)	Lab: The Microscope; The Cell
Week 3 Sept. 3 M Sept. 5 W Sept. 7 F	Labor Day Holiday Meristems; Mitosis & Cytokinesis (pp. 510-511; 58-67; 69-70) Organic Compounds: Carbohydrates & Lipids (pp. 15-22)	Lab: Water Relations
Week 4 Sept. 10 M Sept. 12 W Sept. 14 F	Proteins & Nucleic Acids (pp. 22-27; 33-34; 94-98) DNA & RNA (pp. 163-169) EXAMINATION I	Lab: Mitosis
Week 5 Sept. 17 M Sept. 19 W Sept. 21 F	Protein Synthesis (pp. 169-179; 153-155) Asexual vs. Sexual Reproduction (pp. 141-142; 158-160) Meiosis (pp. 142-148; 160-161)	Lab: Meiosis
Week 6 Sept. 24 M Sept. 26 W Sept. 28 F	Genetics (pp. 148-158) Energetic Reactions (pp. 27; 89-94; 98-101) Glycolysis & Anaerobic Respiration (pp. 102-105; 112-113)	Lab: Natural Selection & Evolution
Week 7 Oct. 1 M Oct. 3 W Oct. 5 F	Aerobic Respiration (pp. 105-114) Photosynthesis: History & Pigments (pp. 115-121) Photosynthetic Reactions (pp. 121-139)	Lab: Respiration
Week 8 Oct. 8 M Oct. 10 W Oct. 12 F	Tissue Systems, Tissues & Cell Types (pp. 6-7; 510-516) Vascular & Dermal Tissue Systems (pp. 516-527) EXAMINATION II	Lab: Photosynthesis
Week 9 Oct. 15 M Oct. 17 W Oct. 19 F	Stem - Primary Growth (pp. 547-559) Stem - Secondary Growth (pp. 580-601) Modified Stems (pp. 575-579)	Lab: Stems
Week 10 Oct. 22 M Oct. 24 W Oct. 26 F	Root Development & Structure (pp. 528-540) Specialized Roots (pp. 540-546) Leaf Morphology & Anatomy (pp. 559-570)	Lab: Roots
Week 11 Oct. 29 M Oct. 31 W Nov. 2 F	Leaf Modifications (pp. 575-579) Hormones (pp. 603-629) Hormones; Phytochrome (pp. 629-644)	Lab: Leaves; Reg. of Growth & Dev.
Week 12 Nov. 5 M Nov. 7 W Nov. 9 F	Mineral Nutrition; Transpiration; Translocation (pp. 645-686) History of Life; Evolutionary Principles (pp. 1-5; 198-217) EXAMINATION III	Lab: Fungi; Algae
Week 13 Nov. 12 M Nov. 14 W Nov. 16 F	Prokaryotes; Heterotrophic Protists (pp. 226-228; 231-233; 238-259; 296-7; 340-343; 309-312) Fungi (pp. 231-2; 260-285; 291-295) Algae & Lichens (pp. 296-305; 312-340; 286-291)	Lab: Bryophytes; Ferns & Fern Allies
Week 14 Week 15	Thanksgiving Break – No Classes	
Week 15 Nov. 26 M Nov. 28 W Nov. 30 F	Life Cycles; Bryophytes (pp. 235-237; 345-367) Vascular Plant Origins; Ferns & Fern Allies (pp. 368-407) Seeds & Pollen (Gymnosperms) (pp. 408-414)	Lab: Gymnosperms
Week 16 Dec. 3 M Dec. 5 W Dec. 7 F	Gymnosperms (pp. 414-433) Angiosperms: Flowers & Fruits (pp. 434-451; 497-509) Pollination Ecology; Summary (pp. 452-474; 475-495)	Lab: Angiosperms
Week 17	FINAL EXAM: FRIDAY, DEC. 14, 7:00 AM	