

**EL CAMINO COLLEGE
FALL SEMESTER 2009
BIOLOGY 8 —Biology of Plants**

Mission Statement for El Camino College

El Camino College offers quality, comprehensive educational programs and services to ensure the educational success of students from our diverse community.

Course Section: 1078

Course Units: 4; Transfer Eligibility for CSU, UC

Students must be enrolled and must regularly attend both lecture and laboratory components in order to earn credits and a grade for this course.

Course Lecture Time: Tue – Thu 11:30PM -- 12:55 PM Bldg-Room: LS-108
Course Laboratory Time: Fri 9:00 AM -- 12:10 PM Bldg-Room: LS-105

Instructor: Mr. Bryan Carey

Office Location: NATS 114 (shared office w/ Dr. T. Palos)

Office Phone: 310-660-3593 x 3357; **Office Hours:** M-W 1:30 – 3 PM; Tu 10:30 – 11:30 AM

e-mail: my account at El Camino College is bcarey@elcamino.edu

Course Description: This biology course focuses on the world of plants and plant-like organisms. Students will study vascular plant anatomy, physiology, and ecology as well as explore the significance of plants to human life. The laboratory work will include a survey of algae, fungi, and all representative plant groups.

Course Prerequisites:

Recommended preparation includes eligibility for English 1A.

The course is transfer eligible and degree applicable.

Course Materials:

Textbook: Plant Biology. 11th edition. Authors: Stern, Bidlack, and Jansky.

Copyright 2008. ISBN 978-0-07-283067-5

Laboratory Manual: Biology Laboratory Manual. 11th edition. Authors: Stern and Bidlack.

Copyright 2008. ISBN 978-0-07-283068-2

Other required materials

I will provide other supplemental materials throughout the semester. Therefore, you may want to bring a 3-ring binder to collect and organize the paperwork I give you throughout the semester.

Use a bound notebook (plain or quadrille), color pencils, goggles, and a hair tie for long hair when working with chemicals, bunsen burners, etc. You will also need to provide me with scantrons for exams-the small one is 815-E, with 15 questions on one side; the large one is 882-E, with 50 on a side (100 total questions). Bring #2 pencils with your for quizzes and exams.

Course Objectives

Goal 1) To gain an understanding of basic botany principles and the characteristics of life.

The student will be able to:

- a. Define basic chemical terms and show an understanding of molecules of living organisms.
- b. Describe the anatomy of cells and relate cellular structures w/ their functions.
- c. Describe processes, chemical reactions, and end products involved in photosynthesis and cellular respiration.

Goal 2) To understand cellular processes and recognize features of specific kingdoms/phyla.

The student will be able to

- a. Identify and describe phases of mitosis and meiosis.
- b. Describe sexual and asexual reproduction and propagation in plants, and identify representative structures in plants capable of producing gametes.
- c. Demonstrate competence in working genetic problems such as mono or dihybrid crosses.
- d. Explain the structure of DNA and how it is used in protein synthesis.

Goal 3) To gain a basic understanding of relationships of organism between and w/in kingdoms.

The student will be able to

- a. Recognize structural, functional, and ecological features characterizing major groups.
- b. Name the major groups of plants, and describe their principle features.
- c. Describe the cells, tissues, & organs of higher plants, and they integrate structure & function.
- d. Describe the reproductive processes of ferns, gymnosperms, and angiosperms, and the reproductive organs used by each group.
- e. Identify the major families of angiosperms from herbarium specimens and/or cut flowers.

Goal 4) To develop a basic understanding of the broad impacts of plant biology including uses by humans and other animals and to be able to communicate that knowledge scientifically.

The student will be able to:

- a. Describe the different types of angiosperm fruit, and identify representative examples.
- b. Describe primary and secondary growth of vascular plants, and the role of hormones and cycles in plant growth.
- c. Identify representative domesticated, medicinal, edible, and poisonous plants.
- d. Describe the role and impact of plants in relation to ecology.
- e. Explain the process of natural selection and discuss the evolution of plants.
- f. Present data and articulate an understanding of what the data means in a written format.

Student Learning Outcomes

The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.

Evaluation Criteria: Lab exercises, lecture and lab quizzes, exams, and other analyses of student learning will be comprised of multiple choice, True/False, completion, and graph interpretation.

Class Policies

Safety and Courtesy Considerations:

Your health, safety, and learning environment are of vital importance in this process. No eating, drinking, smoking, applying cosmetics, changing contact lenses, or similar activities are allowed. Only a bottled water container with a screw-on cap is allowed in class, and you should drink it outside if I give a short break.

Cell phones, iPods, MP3's, iPhones, pagers, etc. **must be turned off, or on silent mode.**

There are consequences for cell phones going off during class, including the option of deducting points from quiz scores for repeat offenses (phone going off twice during semester). I will also confiscate the phone until the end of class, at which time you will receive back your phone.

The various distractions from the above activities impair your ability to learn and my ability to teach in the classroom and laboratory. Please be considerate and be courteous to yourself, your classmates, and your instructor during this semester.

Health and Medical Issues

This is for students with special health or disability concerns. Please contact DSPPS for help throughout the semester. Also, please let me know of any medical situation (heart condition,

allergies, eye problems) and any way I can help facilitate your learning of material in the class environment.

Course Grading

<u>Exams and other activities:</u>	<u>Each</u>	<u>Total for each section</u>
5 Lecture Quizzes	15 (drop 1 lowest)	60
5 Lecture Exams	100 (drop lowest score)	400
2 Website Assignments	10	20
2 Film Notes Pages	5	10
<u>Lecture Points Subtotal</u>		<u>490</u>
13 Laboratory Notebook & Worksheets	5 (13 weeks of labs)	65
6 Laboratory Quizzes	10 (6 taken, drop 1 lowest)	50
1 Botanical Term Paper		75
2 Lab Exams (Midterm and Final)	100	200
<u>Laboratory Points Subtotal</u>		<u>390</u>

CLASS POINTS TOTAL APPROXIMATELY= 880

Grading Breakdown:

90-100% = A (792 - 880) 80-89% = B (791 - 704) 70-79% = C (703 - 616)

60%-69% = D (615- 528) Under 60% = F (below 527)

Poor attendance will reduce your ability to learn material, and will likely affect your grade!

I am allowed to drop students after missing 4 class periods. Being consistently tardy (3 times) adds up to one absence as well. Do your best to attend every lecture and lab section.

No make-up times for major lecture or lab exam unless a major health incident occurs, with proof of a physician's note. Absolutely no make-up for Laboratory Final.

Academic Honesty:

To follow the guidelines of the Natural Sciences Division and El Camino College in general, each student needs to complete his or her own work. This means that no incidences of cheating, plagiarizing, or otherwise providing unfair advantage to complete course assignments are tolerated. You will be given a zero (0) for the assignment, a report to the Dean's Office, and other possible disciplinary consequences. **DO NOT CHEAT OR PLAGIARIZE!** In the long run, doing your own work to the best of your ability will pay off.

Helpful resources and suggestions for success in Biology 8:

Focus on what I take time to emphasize in lecture through a variety of instruction formats. Use the textbook and associated text resources (on-line/cd/dvd) for repetition and to test yourself. Look at important images, graphs, and captions in the text chapters.

Make notes of your notes to reinforce what you understood, as well as any content that wasn't clear or was incomplete in your notes..

I recommend attending my office hours during the semester. Also, get into groups for review sessions. Utilize the many resources available to you at the Learning Resources Center.

The link is included below:

<http://www.elcamino.edu/library/lrc/index.asp>

Tentative Schedule for Biology 8 – Fall 2009

This schedule may change during the semester.
Be aware as topics and/or exam dates may be altered!

Lecture Activities

Topic	Week	Chapter(s)	Notes
Introduction/Cell Chemistry	1 Aug 31-Sep 4	Ch 1,2	
Labor Day Holiday/ Cell Structures	2 Sep 7-Sep 11	Ch 2, 3	
Cell Division/Plant Tissues	3 Sep 14-Sep 18	Ch 3, 4	
Roots, Stems, Leaves; Exam I;	4 Sep 21-Sep 25	Ch 5, 6,7	
Flowers, Fruits, Seeds	5 Sep 28-Oct 2	Ch 8	
Transport, Nutrition	6 Oct 5- Oct 9	Ch 9	
Photosynthesis	7 Oct 12-Oct 16	Ch 10	
Cellular Respiration	8 Oct 19-Oct 23	Ch 10	
Plant Growth & Development Exam II	9 Oct 26-Oct 30	Ch 11	
Meiosis/Genetics	10 Nov 2-Nov 6	Ch 12	
Genetics/DNA & Protein Synthesis	11 Nov-9-Nov 13	Ch 13	
Plant Biotechnology	12 Nov 16-Nov 20	Ch 14	
Exam III; Thanksgiving Holiday	13 Nov 23-Nov 27		
Evolution/Ecology	14 Nov 30- Dec 4	Ch 15, 25	
Plants and Man; Exam IV	15 Dec 7-Dec 11	Ch 24, Append. 3	
FINALS WEEK	16 Dec 14-Dec 18	Tue meeting in classroom	

Laboratory Activities

Week	Topic and Lab Exercise	Notes
1 Aug 31-Sep 4	1 Metrics & Microscopes	
2 Sep 7-Sep 11	2 Cells	
3 Sep 14-Sep 18	3 Mitosis	
4 Sep 21-Sep 25	4 Roots	
5 Sep 28-Oct 2	5 Stems	
6 Oct 5- Oct 9	6 Leaves	
7 Oct 12-Oct 16	18A, 19A F, F, & S	
8 Oct 19-Oct 23	10 Photosynthesis	
9 Oct 26-Oct 30	11 H ₂ O & Respiration; Lab Midterm	
10 Nov 2-Nov 6	14 Bacteria	
11 Nov-9-Nov 13	14 Protista	
12 Nov 16-Nov 20	15 Fungi/Lichens	
13 Nov 23-Nov 27	Holiday	
14 Nov 30- Dec 4	16 Bryophytes & Ferns	
15 Dec 7-Dec 11	17, 18 Seed Plant Survey	
16 FINALS WEEK Dec 14-Dec 18	Lab Final	

Do not hesitate to ask me for help. Go to the Learning Resource Center on campus for additional help. Ask questions during class, outside of class in an office hour type of meeting, or by communication on the internet. This is a learning process for me as well as you, and I will be more effective as an instructor with interaction and input from you.

My task is to help you to learn, and to encourage you to be open to the many different facets of biological science. Learning about the diversity of organisms and their respective roles in the environment is an important part of not only a scientific discipline or a means to a career, but an every day aspect of life for all organisms. You are entitled to all the resources that El Camino College offers to assist you.

Be sure to capitalize on this opportunity. Build your study skills. Develop critical and creative thinking. Be an ambassador to others around you regarding the value of having scientific knowledge (such as from the Biology 8 course) when interacting with people in other scenarios of your life.

Part I

This is an informal questionnaire to find out what your goals from this class are, what your study habits are, and how you learn. Please hand these last two pages to me by the end of Week 1.

Please write in/circle your answers where appropriate.

1. Why are you taking Biology 8—Biology of Plants?
a. requirement only b. interest in science c. other _____
2. What do you hope to get out of Biology 8?
a. a C or better b. some idea of how our world works, how we function as living organisms
c. I have to get an A d. I want to understand more about my health and my environment
3. Do you have access to a computer and means of playing cds and dvds Y or N? _____
4. Do you understand how to read information from (and the parts) of a graph or data table? Y or N? _____
5. For this next question, do not circle an answer choice, but just reflect on your situation. Then follow the directions below.

Which situation or situations best fit your lifestyle and amount of focused study time?

- I) I'm 19, live at home, and have 20-30 hours per week to study
- II) I'm 29, married and/or have kids, a full-time job, and less than 15 hours of real study time
- III) I'm 24, and have a part-time job, and have about 15-20 hours per week to study
- IV) I'm over 30, have at least part-time employment, family, and am taking 1-2 classes per semester, and have about 10 hours of free time to study.

Considering the above possible lifestyles (or something similar to them), imagine how things can get in the way of being a student...sick children, broken down car or other vehicle, a last-minute schedule change at work, a major report or other deadline for your work, etc.

What would you do to maintain a minimum level of good study habits to get through Bio 101 or any other courses you take?

List at least 3 solutions for your potential situation.

6. How do you deal with learning new concepts, terms, and other topics such as you might learn in a science class? Circle one or more that apply to you.
a. skim lab manual or lecture book once right before class
b. make notes, repeat terms, make flash cards, check textbook glossary, figures, and captions
c. read at least 3 times each week, ask teacher or classmates for help, go to campus tutoring service
d. give up after one try or one read, and move on to the next topic
7. What method(s) work best for you to learn? Circle all that apply to you.
a. I memorize everything
b. I read the text, then calculate/observe/manipulate items (for example, lab exercises) to analyze and achieve understanding of the topic
c. I look at sample problems and try to practice them
d. I listen to what the instructor says
e. I make notes from the textbook, and then study the areas that are emphasized by the instructor during lecture/lab

List any other method(s) you use that I have not listed above

Part II
Biology 8--Fall 2009

Please write in/circle your answers where appropriate.

Here are some questions/bits of scientific info that you may or may not know at the start of this class, but hopefully you will have some idea of by the end of the class!

1. What is DNA? What is it made of? What do the three letters stand for? _____

2. The cell is the basic unit of life—True or False?_____

3. An atom has several parts to it that make each element unique. **Circle the three major parts.**

a. proton b. neutron c. boron d. electron e. fluon

4. Water has unique properties which may have given rise to life on this planet. List three properties.

5. Plants are the only organisms that can change light energy into biologically-active chemical energy. True or False?_____

6. Birds and mammals (such as humans) are the most species-rich organisms on the planet. True or False?_____

7. Which elements are important to life? Circle all that you think apply.

a. hydrogen b. oxygen c. nitrogen d. carbon e. phosphorous f. sulfur

8. What is a hypothesis, and how is it different from a theory, such as the Theory of Gravity or the Theory of Evolution? _____

9. Please rank in order of increasing reliability (1 highest, 5 lowest) what you think of the following information sources regarding a science topic... which would you trust to be the most accurate/correct?

a. what you overhear in a conversation about West Nile Virus while at a sports event # _____

b. what you read in a popular press publication like People Magazine # _____

c. what you see on a blog about diets and “carbs” # _____

d. what you read in peer-reviewed publication like Nature or New England Journal of Medicine # _____

e. what you hear on the media (ie NBC Nightly News) about a study performed by some industry, company, or government agency that may impact or set a scientific-related policy # _____

10. Put a check or X by five different resources that you, as an El Camino College student, are entitled to in order to be successful at El Camino College, in your Biology 8 course, or any other course you take.

Here is the list of possible resources:

a. individual or group tutor assistance from the Student Success Centers _____

b. your athletic team coach will do your homework _____

c. your biology instructor will give you all the answers to your exams before you take them _____

d. office hours with your instructor _____

e. contact by e-mail with your biology instructor _____

f. Shauerman Library (main library at ECC) _____

g. copying your classmate’s worksheet answers right before lab starts _____

h. informal study groups with classmates the weekend before a big lecture exam _____