**EL CAMINO COLLEGE**
**Fall Semester 2009**
**BIOLOGY 10 ——Fundamentals of Biology**

**Course Section: 1086**
**Course Lecture Time: M-W - 9:30 AM – 10:55 AM Bldg-Room: LS-108**
**Course Laboratory: Thur - 8:00 AM – 11:10 AM Bldg-Room: NATS-127**

**Course Units: 4; Transfer Eligibility for CSU, UC.**
**Note: The student will not receive UC credit for Biology 10 if this course is taken after Biology 101.**
**Students must be enrolled and must regularly attend both lecture and laboratory components in order to earn credits and a grade for this course.**

**Biology 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 course is a survey of all living things: prokaryotes, protists, fungi, plants, and animals. Basic principles of structure, function, and relationships of living organisms are discussed with special reference to humans.

**Course Prerequisites:**
Recommended preparation includes eligibility for English 84.
The course is transfer eligible and degree applicable.

**Course Materials**:
Textbook**:** Essentials of The Living World. 2nd edition. Authors: Johnson and Losos.
Copyright 2008. ISBN 978-0-07-352542-6
Laboratory Manual**:** Laboratory Manual for Biology 10, El Camino College.
Authors: Sylvia S. Mader,. Darrell S. Vodopich, and Randy Moore.
Copyright 2008. ISBN 978-0-07-2298682-2

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 characteristics of life.
The student will be able to:
a. To describe the characteristics of life.
b. Define basic chemical terms and show an understanding of molecules of living organisms.
c. Describe the anatomy of cells and relate cellular structures w/ their functions.
d. 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. Demonstrate competence in working genetic problems such as mono or dihybrid crosses, multiple alleles, sex-linked inheritance, and blending.
c. Explain the structure of DNA and how it is used in protein synthesis.
d. Identify and describe genetic disorders caused by mutation and nondisjunction

Goal 3) To understand evolutionary concepts and determine relationships among living organisms.
The student will be able to
a. Apply the principles of natural selection to predict outcomes of real or hypothetical examples.
b. Describe speciation, and the evidence for common ancestry of life.
c. Define the basic ecological terms and describe the relationships between populations and the environment, and man's impact on the environment.
d. Explain the Linnaean system of classification, the major taxa, and binomial nomenclature.

Goal 4) To understand, compare, and contrast structure and function of living organisms.
The student will be able to
a. Recognize the structural, functional, and ecological features that characterize the major groups of prokaryotes, Protista, and Fungi kingdoms.
b. Decribe the major cells, tissues, and irgans in hgher plants, and how they integrate structure and function.
c. Describe angiosperm reproduction: alternation of generations, life cycles, and the structure of flowers, fruits, and seeds.
d. Recognize the major phyla of the Animal Kingdom, and describe the structural features that make each phylum unique.
e. Describe the organs and functions of vertebrate organ systems, with special emphasis on humans.

**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 DSPS 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**

| Exams and other activities: | Each | Total for each section |
|---|---|---|
| 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 |
| | **Lecture Points Subtotal** | **490** |
| 14 Laboratory Notebook & Worksheets | 5 (14 weeks of labs) | 70 |
| 14 Laboratory Quizzes | 10 | 140 |
| 2 Lab Exams | 100 | 200 |
| | **Laboratory Points Subtotal** | **410** |

**CLASS POINTS TOTAL APPROXIMATELY= 900**

Grading Breakdown:
90-100% = A (810 - 900) 80-89% = B (809 - 720) 70-79% = C (719 - 630)
60%-69% = D ( 629- 540) Under 60% = F (below 540)
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 the 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 10:
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 misunderstood.
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 10 – 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/ Scientific Method | **1** Aug 31-Sep 4 | Ch 1,2 (in part | |
| Labor Day Holiday/ Cell Chemistry | **2** Sep 7-Sep 11 | Ch 3 | |
| Cell Structures and Functions | **3** Sep 14-Sep 18 | Ch 4, 5 | |
| **Exam I**; Photosynthesis & Cellular Respiration | **4** Sep 21-Sep 25 | Ch 7, 8 | |
| Enzymes/ Mitosis & Meiosis | **5** Sep 28-Oct 2 | Ch 6, 9 | |
| Meiosis/Genetics | **6** Oct 5- Oct 9 | Ch 9,10 | |
| Genetics/DNA & Protein Synthesis | **7** Oct 12-Oct 16 | Ch 11,12 | |
| **Exam II** | **8** Oct 19-Oct 23 | Ch 10 | |
| Evolution/Biodiversity | **9** Oct 26-Oct 30 | Ch 2 revisit, Ch 15 | |
| Prokaryotes, Protists, & Fungi | **10** Nov 2-Nov 6 | Ch 16, 17 | |
| Plant Diversity | **11** Nov-9-Nov 13 | Ch 18 | |
| Angiosperm Reproduction | **12** Nov 16-Nov 20 | Ch 18 | |
| **Exam III;** Invertebrates **Thanksgiving Holiday** | **13** Nov 23-Nov 27 | Ch 19 | |
| More Invertebrates | **14** Nov 30- Dec 4 | Ch 19, 24 | |
| Echinoderms and Chordates | **15** Dec 7-Dec 11 | Ch 24, 23, & part of 23 | |
| **Exam IV during last week** | **16** Dec 14-Dec 18 | Wed 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 Chemical Compostion of Cells | |
| **3** Sep 14-Sep 18 | 3 Cell Structure and Function | |
| **4** Sep 21-Sep 25 | 4 Cell Respiration and Photosynthesis | |
| **5** Sep 28-Oct 2 | Enzymes and Mitosis/Meiosis | |
| **6** Oct 5- Oct 9 | Mitosis/Meiosis, DNA, Genetics | |
| **7** Oct 12-Oct 16 | DNA, Genetics | |
| **8** Oct 19-Oct 23 | Evolution Lab | |
| **9** Oct 26-Oct 30 | Bacteria, Protista, and Fungi | |
| **10** Nov 2-Nov 6 | Plant Kingdom Survey | |
| **11** Nov-9-Nov 13 | Angiosperm Structure and Reproduction | |
| **12** Nov 16-Nov 20 | Porifera, Cnidaria, Platyhelminthes, Nematoda | |
| **13** Nov 23-Nov 27 | Mollusca/Annelida/Arthropoda | |
| **14** Nov 30- Dec 4 | Echionderms and Chordates | |
| **15** Dec 7-Dec 11 | Physiology Lab | |
| **16 FINALS WEEK Dec 14-Dec 18** | **Lab Practicals/Finals** | |

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 10 course) when interacting with people in other scenarios of your life.

**Name _____ Date _____**

**Biology 10—El Camino College---Fall 2009---**

**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 10— Fundamentals of Biology?
a. requirement only b. interest in science c. other_____

2. What do you hope to get out of Biology 10?
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 10—Fundamentals of Biology**
**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 NileVirus 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 10 course, or any other course you take. Here is the list of possible resources:

a. individual or group tutor assistance form 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 _____