

**BIO 10, # 1094- Fundamentals of Biology**  
<http://www.elcamino.edu/faculty/bdevelasco/index.html>

**Professor:** Dr Begona de Velasco  
**E-mail:** [bdevelasco@elcamino.edu](mailto:bdevelasco@elcamino.edu)  
**Lecture/Lab:** NS-127, T/Th: 2-4:55 pm  
**Office Hours:** after class and by appointment

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### **COURSE DESCRIPTION**

This course is a lower division course designed to introduce you to the living world around you. The course is a survey of all living forms: prokaryotes, protists, fungi, plants, and animals. Basic principles of structure, function, and relationships of living organisms are discussed with special reference to humans.

### **COURSE OBJECTIVES**

1. Describe the general characteristics of life.
2. Explain the basic levels of biological organization in the body, from atoms to organism.
3. Distinguish between the four types of macromolecules (lipids, carbohydrates, proteins, and nucleic acids) and their major roles in the human body.
4. Differentiate between a prokaryote and eukaryote cell and give relevant examples.
5. Relate evolutionary events with advantageous changes to the body structure, for each animal phylum.
6. Explain the importance of an ecologically friendly life style with special attention to sustainable resources.
7. Explain the unique characteristics of a plant and be able to classify some examples.
8. Understand the principles that apply to their proper body functioning; including the nutrition, respiration, memory, immunology, and reproduction.

### **STUDENT LEARNING OUTCOMES**

Upon completion of this course, students should be able to:

1. Demonstrate proper microscope techniques to view and identify types of cells and tissues that compose the body organs explaining the characteristics that make them suited to organ function.
2. Comprehend the structure, composition and functions of the organ systems of the human body.
3. Explain basic technical anatomical terminology.
4. Investigate anatomical structure by proper dissection.
5. Identify bones and muscles at the site on an injury.
6. Identify muscle groups as flexors/extensors
7. Explain how our body can be move by joints.
8. Differentiate between types of blood cells.

### **MATERIALS**

1. Essentials of the Living World, Johnson & Losos, 2nd ed., 2008
2. Biology 10 Laboratory Manual, Mader S, Vodopich D & Moore R, 2007.

## GRADING

Scale: A 90-100%, B 80-89%, C 70-79%, D 60-69%, F <60%

### Total Points Possible: 700

- Lecture Exams: 4, 50 pts each= 200 pts
- Pretests: 4, 10 pts each= 40 pts
- Assignments: 4-8= 160 pts
- Lab Practical Exams: 3, 50 pts each= 150 pts
- Lab Work Sheets: 8-12= 150 pts

## CLASS POLICIES

1. Class meetings are designed to clarify and expand on your readings. All reading and study questions assigned are your responsibility to complete. If there is anything you do not understand, I want you to feel free to ask questions during lectures as discussions are welcomed (time permitting). You are also encouraged to see me if you need any extra help.

- **Exams:** 4 lecture exams and 3 lab practical exams will be given during the semester. Previous to each lecture exam, students will be given a pretest take home exam to turn it in the day of the corresponding exam. The lecture exam questions and pretest "take home" questions will be based on material from the lectures and textbook. Make-up lecture exams will be granted with the proper documentation. If granted, make-up exams will be given concurrently with the last exam. No make-up exams can be given for lab exams.
- **Lab Manual:** The laboratory manual contains exercises and which they have to be completed and showed at the end of each lab to get part of the lab grade. It is your responsibility to check your answers with your manual, textbook, and lab partners to ensure that you have the correct answers. I will only be spot-checking each manual.
- **Assignments:** will be offered throughout the semester including for:
  - student study guide, hwk questions, genetic problems
  - 3" x 5" note cards, web site movies analysis
  - Scientific article questions, posters

2. **RELIGIOUS OBSERVANCES:** Please notify the instructor in advance of religious observances that interfere with class attendance.

3. **STUDENTS WITH DISABILITIES:** Students with disabilities should inform the instructor especially if there are medical problems or learning disabilities.

## TIPS for Powerful Learning:

1. Read the assigned text and lab chapters before class for better understanding.
2. Attend class and take notes. Students who are auditory learners find it helpful to record the lectures and listen to them again. Students who are kinesthetic learners find that rewriting their notes is helpful. Visual learners are aided by diagrams. To find out what kind of learner you are, go to the VARK website at: <http://www.vark-learn.com/>. Review your notes.
3. Answer the questions at the end of each assigned chapter. They are a good source for exams.
4. Use the CD-ROM included with your textbook or go the web site to help you review each chapter.
5. Make up 3" x 5" flash cards held together by two three-inch rings. You can put any handwritten or hand-drawn info.
6. Study in small groups.
7. When something is difficult to understand, ask me.

## TENTATIVE SCHEDULE

Wk	Lecture Topic	Chp	Lab Topic	Manual
1	Introduction, Biological molecules	1, 3, 4	Microscopy	M2
2	Biological molecules	"	Cell: composition	M3
3	DNA-RNA-protein, Evolution	13, 2, 15	Cell: Structure	M4
4	EXAM 1 (9/22), Cell	5	Cell Respiration & Photosynthesis	Handout
5	Cell, Cell division	9, 10	Enzymes, Mitosis/Meiosis	M6, M5
6	Genetics	11	DNA, Genetics	M22, V17
7	Biotechnology	14	Genetics, Lab exam I (10/13)	V17
8	EXAM 2 (10/22), Viruses/Bact/protist/fungi	16, 17	Evolution Lab	Handout
9	Animals	19	Bacteria, Protista, Fungi	V24,25,26,27
10	Ecology	20, 21, 23	Plants	M26,M27
11	Plants	18, 33, 34	Angiosperm Structure & Reproduction, Exam II (11/12)	M9,M10
12	Plants, EXAM 3 (11/19)	"	Porifera/Cnidaria/Platyhelminthes/ Nematoda/Annelida	V36,V37
13	Human systems, Thanksgiving (11/26)		Mollusca/Arthropoda	V38, V39
14	Human systems	29-32	Echinoderms/Chordates	M30
15	Human systems	29-32	Physiology Lab	
16	EXAM 4 (12/15)		Lab exam III (12/17)	

### USEFUL WEB-SITES:

Many resources for Biology: <http://science.nhmccd.edu/biol/bio1int.htm>

Practice: [http://highered.mcgraw-](http://highered.mcgraw-hill.com/classware/ala.do?isbn=0072986751&alaid=ala_857046&showSelfStudyTree=true)

[hill.com/classware/ala.do?isbn=0072986751&alaid=ala\\_857046&showSelfStudyTree=true](http://highered.mcgraw-hill.com/classware/ala.do?isbn=0072986751&alaid=ala_857046&showSelfStudyTree=true)

[http://www.uwgb.edu/markerj/P\\_QZ/Humbio\\_QZ/QZ\\_PAGE.HTM](http://www.uwgb.edu/markerj/P_QZ/Humbio_QZ/QZ_PAGE.HTM)

[http://www.glencoe.com/sec/science/biology/bio2004/self\\_check\\_quiz/scquiz.php?abrev=tx](http://www.glencoe.com/sec/science/biology/bio2004/self_check_quiz/scquiz.php?abrev=tx)

[http://www.mhhe.com/biosci/genbio/maderbiology7/student\\_index.mhtml](http://www.mhhe.com/biosci/genbio/maderbiology7/student_index.mhtml)

Protons, neutrons, electrons: <http://www.youtube.com/watch?v=-P4N-0Wbtyk&feature=related>

Atoms: <http://www.youtube.com/watch?v=xPzOvOMv0M8&feature=related>

U decay into Lead; Dating the Earth's Age: <http://www.youtube.com/watch?v=6SxzfZ8bRO4>

C14, Dating of Fossils: <http://www.youtube.com/watch?v=81dWTeregEA>

Radioactive Iodine, Thyroid: <http://www.youtube.com/watch?v=nAtpRMTJ98>

Macromolecules: <http://bcs.whfreeman.com/thelifewire/content/chp03/0302002.html>

Chromosomes: [http://www.youtube.com/watch?v=Ru8zC\\_JRyTI](http://www.youtube.com/watch?v=Ru8zC_JRyTI)

DNA Replication: <http://highered.mcgraw-hill.com/olc/dl/120076/bio23.swf>

Transcription of RNA: <http://www.youtube.com/watch?v=vJSmZ3DsntU>

Protein synthesis: <http://www.youtube.com/watch?v=nl8pSlonmA0&feature=related>

Cells: [http://www.biology.arizona.edu/CELL\\_BIO/cell\\_bio.html](http://www.biology.arizona.edu/CELL_BIO/cell_bio.html)

Cell Membranes: [http://www.biology.arizona.edu/CELL\\_BIO/problem\\_sets/membranes/index.html](http://www.biology.arizona.edu/CELL_BIO/problem_sets/membranes/index.html)

Cell Organelles: [http://www.biology.arizona.edu/CELL\\_BIO/tutorials/pev/page3.html](http://www.biology.arizona.edu/CELL_BIO/tutorials/pev/page3.html)

Cell Cycle: [http://www.youtube.com/watch?v=JmiSg\\_bEv6I](http://www.youtube.com/watch?v=JmiSg_bEv6I)

Mitosis: <http://highered.mcgraw-hill.com/olc/dl/120073/bio14.swf>

Meiosis: <http://highered.mcgraw-hill.com/olc/dl/120074/bio19.swf>

Biomes: <http://www.youtube.com/watch?v=ag5ATGEplbU>

Human systems: reproductive system:

[http://www.layyous.com/root%20folder/videos\\_of\\_basic\\_medical\\_informat1.htm](http://www.layyous.com/root%20folder/videos_of_basic_medical_informat1.htm)

Insulin & Diabetes: <http://www.youtube.com/watch?v=qzjjW--I-2Q&feature=related>

## Student Information Form

Class name and date:

Student Name:

Email:

Major:

Main Interests:

Life Goal(s):

What would you most like to learn about this class you are ready to take?

What worries or concerns do you have about this class?