

**BIOLOGY 10.05 and 10.06 – INTRODUCTORY BIOLOGY – FALL 2010****4 hours lecture/3 hours lab (5 units)**

- Lecture in SC1102 Mon/Wed: 3:30 – 5:15 pm
- Lab in S52 Mon/Wed: 12:30 – 3:15 pm

**Instructor: Jason Bram Office: Bldg. S5, Room S51a****Office Hours: Mon. 10:30-11:30, Tues. 12:30-1:30, Wed. 11-12, Thurs. 12:30-1:30 and by appointment****E-mail Address: [bramjason@fhda.edu](mailto:bramjason@fhda.edu) or [bramjason@deanza.edu](mailto:bramjason@deanza.edu)****Phone #: 408-864-8654****Instructor webpage: COMING SOON TO A COMPUTER NEAR YOU!!!**

**INTRODUCTION:** Welcome to Biology 10 and the study of the wondrous array of life and adaptation on our planet! For most students this is an astounding, interesting, sometimes awe-inspiring and hopefully quite fun view of biology as we know it. This 5-unit course is an introduction to the wonderful diversity of life on earth, life's levels of complexity (from molecule to biosphere), and how plants and animals work as individuals and as parts of populations, communities and ecosystems. The course is intended for **non-biology majors**, and my goal as your instructor is to help you achieve a good understanding of the basic principles of life on earth! I also hope that you will develop a lifelong appreciation of biology - you will see for yourself that understanding biology makes the world a much more interesting place!

**COURSE DESCRIPTION:** An introduction to biology as a branch of the biological sciences and to its basic unifying principles, with selected application to the scientific method, evolutionary concepts, genetic modification, biotechnology, ecology, ecological crises and human impacts.

This course satisfies the De Anza General Education Requirement in Natural Sciences and is transferable to both UC and CSU as a general education science course. This course does **NOT** apply towards a major in biology.

**ADVISORY:** English Writing 100B, and Reading 100 (or Language Arts 100) or English as a Second Language 24 and 72 (or ESL 4)

**TEXT:** The **required** text is: Biology Concepts & Connections by Campbell Sixth edition. 2008 Pearson Education. ISBN: 9780555038031. The best way to use the text is as a reference. My tests come from my lectures, so if there's a concept that I go over in lecture that you need further information on, the textbook is a great resource!

For the lab, the required text is the BIOL 10 Lab Manual, by Judy Cuff-Alvarado. ISBN: 9782812348174. HINT: It has my name on it too!!!

Both can be found at the De Anza Bookstore and are customized for this course.

**COURSE REQUIREMENTS AND EXPECTATIONS:** You are expected to attend every class meeting. If you miss a class, it is your responsibility to obtain information and materials dispensed in that class period. Attendance, as well as participation, will be the first criteria considered when determining "borderline" grades. In my experience, those students who do not attend class are the students who do not fulfill their potential regardless of their level of understanding. Medical, legal and other scheduled appointments should not be scheduled during normal class times and these will not be considered as excused absences. Medical or personal emergencies will require a written notice of the specific problem signed by an appropriately qualified individual.

Disruptive behavior will not be permitted in lecture. The lecturer will determine what constitutes disruptive behavior at his discretion, and disruptive students may be asked to leave. Here are some general rules:

- Arrive to class on time, and do not leave early.
- No use of cell phones, MP3 players, TEXT MESSAGING, or pagers during lecture.
- Do not converse with your classmates (or yourself!) while the instructor or other presenter is addressing the class. If you have a question or discussion item, please raise your hand.
- Be respectful of your instructor, college staff, and your fellow students.

**I WELCOME AND ENCOURAGE YOU TO ASK ME QUESTIONS DURING LECTURE!!! IF I DON'T KNOW THE ANSWER, I WILL FIND YOU THE ANSWER!**

<b>ASSIGNMENTS</b>	<b>DATE</b>	<b>POINTS</b>
Three Lecture Exams: (non-cumulative, highest score is doubled)	Oct. 11, Nov. 10, Dec. 9	100 pts. each
Two Lab Exams:	Oct. 18/20, Nov. 29/Dec. 1	75 pts. each
Weekly Quizzes/Assignments (every Monday except for exam weeks)		5 pts. each (30 pts. total)
You can drop your lowest quiz/assignment grade - no makeups!!!		
Lab Assignments:		5 pts. each (40 pts. total)
<b>620 TOTAL POINTS POSSIBLE!!!</b>		

### **EXTRA CREDIT POINTS**

Field trip	Nov. 5-7 (tentative)	up to 25 pts.
Project Presentation	Nov. 15/17	up to 25 pts.
Participation/Effort (based on attendance & attitude)		up to 25 pts.
Note: Students who exceed 4 absences are not eligible for extra credit.		

**GRADING:** Final letter grades shall be assigned in accordance with the following percentages:

<b>A+</b>	=	95% or higher	589 points or higher
<b>A</b>	=	91-94%	564-588
<b>A-</b>	=	88-90.9%	546-563
<b>B+</b>	=	85-87.9%	527-545
<b>B</b>	=	80-84.9%	496-526
<b>B-</b>	=	76-79.9%	471-495
<b>C+</b>	=	71-75.9%	440-470
<b>C</b>	=	63-70.9%	391-439
<b>D</b>	=	53-62.9%	329-390
<b>F</b>	=	52.9% and below	328 points or lower

Note: I do not curve the grades for the course. IT IS IN YOUR BEST INTEREST NOT TO SETTLE ON A GRADE!!! EACH OF YOU DESERVES THE BEST GRADE THAT YOU CAN ACHIEVE!!! DO NOT HESITATE TO TALK TO ME IF YOU ARE FINDING YOURSELF LOST, CONFUSED, OVERWHELMED, BORED OR SCARED ABOUT YOUR GRADE OR ANY OF THE INFORMATION PRESENTED AT THE EARLIEST POSSIBLE SIGN THAT YOU ARE HAVING DIFFICULTY.

**EXAMS:** Each of the exams will consist of a combination of multiple choice, short answer, matching, and fill-in-the-blank questions.

1. Both the lab and lecture exams will only cover the material within that time period (i.e. the 2<sup>nd</sup> lecture exam will only cover the material presented AFTER the 1<sup>st</sup> exam).
2. I will be handing out reviews for the lecture exams for you to take home and study from, but in no way are they substitutes for coming to class!!!
3. You CANNOT make up an exam!!! This is not fair to the other students.
  - a. It is my experience that certain students always seem to have emergencies come up on exam days. I have found that when I'm "nice" to students, they abuse the privilege. Please be a responsible individual!
  - b. In saying all this, if an uncontrollable emergency or personal crisis arises, I occasionally will allow make-ups for **responsible** individuals, but they are few and far between. If something does happen, let me know the situation as soon as you can, and I will be more flexible. You will need to provide some sort of proof (i.e. a doctor's note, etc.)
4. Weekly quizzes/assignments will be based on the previous' week lectures. I'm trying to ensure that you're keeping on top of things! It's an open note test!!! There is ABSOLUTELY NO makeups on these - that's why I'm letting you drop your lowest score!!!

## IMPORTANT NOTES REGARDING THE EXTRA CREDIT PROJECT

**PRESENTATION:** This will be a group project, and you will receive a group grade. You are required to orally present (as a group) a 7-10 minute seminar based on a topic in biology. The goal of this project is to help you learn both how scientific studies are conducted, as well as to learn how scientific research is presented. Further discussions about this assignment will be covered around the middle of the semester.

**Project Presentation rubric**

	Great	Okay	Doesn't do it
Does the group present an introduction to their topic?	5	3	1
Does the group present a scientific paper based on their topic?	5	3	1
Does the group seem to understand what they are presenting?	5	3	1
Does the group effectively use visual aids (i.e. Powerpoint slides)	5	3	1
Overall, how did the group present their topic & scientific paper?	5	3	1

**IMPORTANT NOTES REGARDING THE LABORATORY ASSIGNMENTS AND THE LAB ITSELF:**

No eating, drinking, smoking, or sewing (especially no sewing!) allowed in the laboratory!

You are expected to attend all labs. If more than one lab is missed without a reasonable excuse, you may be dropped from the course! If three labs are missed, you will be dropped from the course!!!

If you miss a lab, you are responsible for finding out what you missed. If you miss the Monday lab, you cannot make up the lab by attending the Wednesday lab unless you have cleared it with me in advance.

Grading: You do the lab, you show me you did the work, you get 5 points for that lab. If you are not there or don't do the work, you don't get 5 points for that lab. Very simple!

1. The lab tests will be based solely on the labs that we do in class, so it's definitely in your best interest to be there!!!

**SCHEDULE:** The following schedule may be modified during the course at my discretion.

DATE	LECTURE TOPIC	LAB
9/20	Course Introduction (Chapt. 1)	Lab #1 - Intro
9/22	Chemistry (Chapt. 2)	Lab #1 - Intro
9/27	Molecules (Chapt. 3)/Cells (Chapt. 4)	Lab #2 - Cells
9/29	Cells (Chapt. 4-5)	Lab #2 - Cells
10/4	Cellular Respiration (Chapt. 6)	Lab #3 - Enzymes
10/6	Photosynthesis (Chapt. 7)	Lab #3 - Enzymes
10/11	LECTURE EXAM #1 (includes material covered 9/20 - 10/6)	Lab #4 - Biotechnology
10/13	Cell Division (Chapt. 8)	Lab #4 - Biotechnology
10/18	Cell Division (Chapt. 8)	Lab Exam #1 (Labs 1-4)/Lab #5 - Cell Division
10/20	Genetics (Chapt. 9)	Lab Exam #1 (Labs 1-4)/Lab #5 - Cell Division
10/25	DNA & Protein Synthesis (Chapt. 10)	Lab #6 - Animal Kingdom
10/27	Protein Synthesis (Chapt. 10)	Lab #6 - Animal Kingdom
11/1	Biotechnology (Chapt. 11-12)	Lab #7 - Plants
11/3	Evolution (Chapt. 13-15)	Lab #7 - Plants
11/8	Evolution (Chapt. 13-15)	Lab #8 - ESA Tour on Ca. native plants
11/10	LECTURE EXAM #2 (includes material covered 10/13 - 11/8)	Lab #8 - ESA Tour on Ca.

		native plants
11/15	Microbial Life	Presentations
11/17	Plants/Fungi	Presentations
11/22	Animals	NO LAB!!! Field trip freebie!
11/24	Biospheres, Communities, & Ecosystems (Chapt. 34, 36-37)	NO LAB!!! Field trip freebie!
11/29	Conservation Biology (Chapt. 38)	Lab Exam #2 (Labs 5-8)
12/1	Make-up Lecture	Lab Exam #2 (Labs 5-8)
12/9	<b>FINAL EXAM 4:00 - 6:00 PM IN THE CLASSROOM!!!</b> (includes material covered	
11/15 - 12/1)		

**FIELD TRIPS:** We will be embarking on **ONE FIELD TRIP**. You are not required to attend. However, it is worth extra credit, and more importantly, will be a heck of a lot of fun! If you cannot attend the field trip, you can go somewhere biologically related (i.e. aquarium, zoo, etc.) on your own and write me a 2 page report (double spaced) telling me about your experience. You also must include a picture of yourself at the place you go. If you can't go anywhere biologically related, an alternative assignment will be given to you. Please let me know if you have any concerns/questions.

### STUDENT LEARNING OBJECTIVES:

1. Evaluate the correlation of structure and function in plants and animals.
2. Identify and explain the characteristics of life.
3. Demonstrate an understanding of the impacts of human activities on the biosphere.
4. Apply principles of the scientific method to everyday problems.

### COURSE OBJECTIVES:

Upon completion of the course students will be able to:

- A. Analyze the scientific method as an indispensable tool of investigation.
- B. Evaluate the characteristics of life.
- C. Analyze the molecular structure and function of the cell, its organelles and the coordination of cellular activities and processes in the organism.
- D. Summarize the processes of cellular and human reproduction
- E. Evaluate the scientific evidence supporting the theory of evolution.
- F. Appraise and analyze the components and interrelationships of communities, ecosystems and the biosphere.
- G. Assess the impacts of human activities on the biosphere
- H. Inventory the historical roles and contributions of pioneers of scientific research.

### EXPANDED DESCRIPTION: Content and Form

- A. Analyze the scientific method as an indispensable tool of investigation
  1. Formulate and solve problems utilizing the scientific method, including hypothesis development, prediction, and experimentation.
  2. Evaluate the terms "hypothesis" and "theory" in common and scientific language.
- B. Evaluate the characteristics of life.

1. Compare and discuss the basic properties shared by all living things: cellular organization, metabolism, homeostasis, growth and reproduction, and heredity.
  2. Examine levels of biological organization and the hierarchy of complexity demonstrated by organisms of the living world.
- C. Analyze the molecular structure and function of the cell, its organelles and the coordination of cellular activities and processes in the organism.
1. Discriminate between the structure and the evolutionary history of Eukaryotic and Prokaryotic life forms and the kingdoms of life associated with these domains.
  2. Compare and contrast the basic molecules of life: proteins, carbohydrates, lipids, and nucleic acids.
  3. Evaluate basic organelles of the cell and describe their role in cell processes such as photosynthesis, cell respiration, cell transport, cell division.
  4. Compare prokaryotic and eukaryotic cells and their evolutionary history.
  5. Examine some of the specific human health problems related to abnormalities of cell structure or biochemistry (e.g., sickle cell anemia, Tay Sachs, cystic fibrosis)
- D. Summarize the processes of cellular and human reproduction.
1. Compare and contrast mitosis and meiosis, the phases and subphases of the cell cycle and the role these processes play in reproduction, growth and cell repair.
  2. Appraise genetics and the transmission of genes from generation to generation, distinguishing different patterns of inheritance and examining molecular genetics.
  3. Examine the consequences of errors that may occur during mitotic or meiotic cell divisions including: silent mutations, Down Syndrome, Turner Syndrome, and various forms of cancer.
- E. Evaluate the scientific evidence supporting the theory of evolution.
1. Compare and contrast scientific evidence such as the fossil record, the molecular record, the anatomical record including homologous and analogous structures.
  2. Analyze natural selection, the process that has led to the diversification of life forms and the development of adaptations of organisms to their environment and their interdependent relationships
  3. Assess evidence that human activities result in selection on other species (e.g., antibiotic resistance in bacteria, pesticide resistance in insects, introduced species, and artificial selection)
- F. Appraise and analyze the components and interrelationships of communities, ecosystems and the biosphere.
1. Diagram and examine trophic pyramids, energy pyramids, food chains and food webs.
  2. Analyze the flow of energy and cycling of materials in ecosystems
  3. Compare and contrast the earth's terrestrial and aquatic ecosystems including biomes and plant communities such as: the desert, tropical rain forest, foothill woodland, riparian, chaparral, redwood, marsh and estuary.
- G. Assess the impacts of human activities on the biosphere.
1. Examine and discuss the causes and impacts of global climate change, deforestation, marine fisheries depletion, in historical and current perspective.
  2. Evaluate the evolution of human ecology (from hunter/gatherers, pastoralists, to agriculturalists and to more modern industrialists) and discuss its impact on the earth.
  3. Estimate the environmental consequences of human inaction and propose changes that may reduce the rate of global climate change.

H. Inventory the historical roles and contributions of pioneers of scientific research.

1. Assess the work and research results of leading biologists over time, such as Darwin, Gould and Eldredge, McClintock, Watson and Crick, and Franklin
2. Examine scientific contributions of physicians and scientists in various cultural groups throughout history.

**CHEATING:** Absolutely no form of academic dishonesty or plagiarism will be tolerated. It is unethical, unfair, and a violation of your own intelligence as well as being lame, slimy, vile, and pathetic. **Anyone caught cheating will be subjected to the most severe academic penalties.**

**ESSENTIAL STUDENT MATERIALS:** Scantrons, #2 pencils, e-mail, textbook, and lab manual.

**WITHDRAWAL AND YOUR CONCERNS ABOUT YOUR GRADE:** **September 25<sup>th</sup> (non-residents) or October 2<sup>nd</sup> (residents)** is the last day to drop the course and receive a refund. The last day to withdraw from the course (without a "W") is **October 8<sup>th</sup>**. The last day to withdraw from the course without penalty (with a "W") is **November 12<sup>th</sup>**. **IF YOU ARE CONCERNED ABOUT YOUR GRADE, PLEASE COME TALK TO ME AT THE EARLIEST POSSIBLE TIME SO THAT WE CAN DISCUSS YOUR OPTIONS.** It is to your great advantage to discuss with me (I don't bite!) any problems you are having early in the quarter so that I can try and assist you as much as possible.

**IT IS YOUR RESPONSIBILITY TO OFFICIALLY WITHDRAW SO THAT YOUR TRANSCRIPT RECORD WILL NOT BE ADVERSELY AFFECTED.**

**PLEASE NOTE:** Students who are eligible for reasonable accommodations must speak with the instructor as soon as the need for accommodation is known.

**SOME EXTRA NOTES AND HINTS TO BE A SUCCESSFUL COLLEGE STUDENT (from my own experience)!**

1. **ATTEND CLASS!!!**
2. **If you miss a class, get the notes from another student. If it's still unclear, then ask your professor!!!**
3. **Don't be afraid of a professor's office hours!**
4. **Don't be afraid of your professor! We are generally reasonable people! Talk to me! Ask me questions, no matter how stupid you may think they are!!!**
5. **Make your professor respect you!**
6. **Don't procrastinate!**
7. **Remember that in the end, it is your responsibility to understand the assignment, not for your professor to explain it better!**
8. **Feel free to change your major!**

9. Don't give your professor attitude. Remember that even if they're the biggest jerk ever, they have the power. Think of them as your boss. If you have a disagreement, bring it up after class/in office hours.  
(See #5)
10. Remember that there is some subjectivity in determining your grade.
11. Don't let up!
12. Being a student should be your #1 priority (if possible). Think of being a student as your job. Think of the college as the place that you work. Unfortunately, you don't get any wages except for the grades you receive, but in the end, those grades can lead to a much better future than a few bucks can!
13. Study on a regular basis!
14. Study in a way that's best for you, whether that be in groups, at Starbucks, in a library, cramming, whatever!!!
15. Take advantage of extra credit!
16. Take advantage of opportunities presented (i.e. review sessions/study guides)!
17. It's a competitive world. Be competitive in college! Don't settle!!!