

BIOLOGY 10.05 – INTRODUCTORY BIOLOGY – SUMMER 2011

4 hours lecture/3 hours lab (5 units)

- **Lecture in SC1102 M, T, W, Th: 2:30 pm – 4:20 pm**
- **Lab in S52 Mon/Wed: 4:30 pm – 7:20 pm**

Instructor: Jason Bram **Office:** Bldg. S5, Room S51a

Office Hours: By appointment any day, any time!

E-mail Address: bramjason@deanza.edu

Phone #: 408-864-8654

Instructor webpage: <http://www.deanza.edu/faculty/bramjason>

Catalyst webpage: <https://catalyst.deanza.edu/>

We will be using the Catalyst webspace to take quizzes, turn in assignments, and it is a place where you can track your grade in the course and access course files like lectures and study guides. **YOU WILL BE TURNING EVERYTHING IN VIA CATALYST SO THERE IS SOME RECORD OF YOU TURNING IT IN!** Please let me know as soon as possible if you have any questions/problems with accessing Catalyst.

AN IMPORTANT NOTE REGARDING CATALYST: Although it is a great place to track your grade, it is not good for calculating it!!! The best way to figure out where you stand is to take your total points, divide them by the total possible points, and then refer to this greensheet.

Textbook webpage (good resources for you!): https://paris.mcgraw-hill.com/sites/0073403423/student_view0/ There are additional resources on the Connect website (comes with the textbook).

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: Essentials of Biology by Sylvia S. Mader 2nd edition. 2010 ISBN: 9780077280093 McGraw Hill Higher Education. 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: 9782812349201.

Both can be found at the De Anza Bookstore.

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!

| ASSIGNMENTS | DATE | POINTS |
|--|---------------------------|-------------------------------|
| Three Lecture Exams: (non-cumulative, highest score is doubled) | July 7, July 21, August 4 | 100 pts. each |
| Two Lab Exams: | July 13, August 3 | 75 pts. each |
| Weekly Quizzes/Assignments | | 5 pts. each (25 pts. total) |
| You can drop your lowest quiz/assignment grade - no makeups!!! | | |
| Lab Attendance/Participation: | | 40 pts. (5 pts. for each lab) |
| Fieldtrip/Field Trip Assignment: | | 5 pts./20 pts. |
| Group Project Presentations: | | 25 pts. |
| 665 TOTAL POINTS POSSIBLE!!! | | |

EXTRA CREDIT POINTS

Participation

up to 25 pts.

Paper

up to 25 pts.

Note: Students who exceed 4 absences (LECTURE & LAB) are not eligible for the Participation extra credit.

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

| | | | |
|-----------|---|-----------------|----------------------|
| A+ | = | 95% or higher | 632 points or higher |
| A | = | 91-94% | 605-631 |
| A- | = | 88-90.9% | 585-604 |
| B+ | = | 85-87.9% | 565-584 |
| B | = | 80-84.9% | 532-564 |
| B- | = | 76-79.9% | 505-531 |
| C+ | = | 71-75.9% | 472-504 |
| C | = | 63-70.9% | 419-471 |
| D | = | 53-62.9% | 352-418 |
| F | = | 52.9% and below | 351 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. The lecture exams will only cover the material within that time period (i.e. the 2nd lecture exam will only cover the material presented AFTER the 1st exam).
2. I will be providing reviews for the lecture exams for you to 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 documentation (i.e. a doctor's note, etc.)
 - i. IF THIS HAPPENS, IT CAN ONLY HAPPEN ONCE! IF IT HAPPENS MORE THAN ONCE, YOU HAVE MORE IMPORTANT THINGS TO WORRY ABOUT THAN THIS COURSE!!!
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! The quizzes are open-note!!! There is ABSOLUTELY NO makeups on these - that's why I'm letting you drop your lowest score!!! All quizzes/assignments will be completed via the Catalyst website (see above for web

address) and will have strict deadlines. **If there is a problem with this, other arrangements can be made, but you need to talk to me BEFORE the assignment/quiz in order to make other arrangements.**

5. For the lab exams, seating will be assigned.

IMPORTANT NOTES REGARDING THE 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 4-6 minute seminar based on a topic in biology. This project will be gone over in class around the middle of the quarter.

Project Presentation rubric

| | Great | Okay | Doesn't do it |
|--|-------|------|---------------|
| Does the group structure their presentation effectively? | 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 |
| Does the group have good content? | 5 | 3 | 1 |
| Does the group provide three usable questions for the lab exam? | 5 | 3 | 1 |

IMPORTANT NOTES REGARDING THE FIELD TRIP/FIELD TRIP

ASSIGNMENT: We will be going on a fieldtrip during the quarter for one of the labs during the lab period (worth 5 pts.). An assignment will be given to you after the field trip, which is due by the day of the final and is worth 20 points. If for some reason, you cannot go on the field trip, you need to 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. Please let me know if you have any concerns/questions. You will also be responsible for the field trip assignment.

IMPORTANT NOTES REGARDING THE LABORATORY ASSIGNMENTS AND THE LAB ITSELF:

1. No eating, drinking, smoking, or sewing (especially no sewing!) allowed in the laboratory!
2. 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!!!
3. If you miss a lab, you are responsible for finding out what you missed. If you don't, your lab test grade will most likely suffer tremendously!
4. Grading: You are responsible for both attending lab and completing the pre-lab and post-lab questions in your lab book. If you do both, you will receive 5 points for that lab.
5. 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!!!
6. Like the lecture exams, the lab exams are non-cumulative.

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

| DATE | LECTURE TOPIC | LAB |
|---|--|---|
| 6/27 | Course Introduction (Chapt. 1) | Lab #1 - Intro |
| 6/28 | Chemistry (Chapt. 2) | |
| 6/29 | Molecules/Cells (Chapters 3 & 4) | Lab #2 - Enzymes |
| 6/30 | Cells (Chapters 4 & 5) | |
| 7/4 | NO CLASS!!! INDEPENDENCE DAY!!! | NO LAB!!! |
| 7/5 | Photosynthesis (Chapt. 6) | |
| 7/6 | Cellular Respiration (Chapt. 7) | Lab #3 - Biotechnology |
| 7/7 | LECTURE EXAM #1 (includes material covered 6/27 - 7/6) | |
| 7/11 | Cell Division (Chapt. 8) | Lab #4 -Cell Division/Genetics/Review |
| 7/12 | Cell Division/Sexual Reproduction (Chapt. 9) | |
| 7/13 | Genetics (Chapt. 10) | Lab Exam #1 (Labs 1-4)/Project Presentation Assignment |
| 7/14 | DNA & Protein Synthesis (Chapt. 10 & 11) | |
| 7/18 | Protein Synthesis (Chapt. 11) | Lab #5 - Animals |
| 7/19 | Biotechnology (Chapt. 11 & 12) | |
| 7/20 | Evolution (Chapt. 14 - 16) | Lab #6 - Plants |
| 7/21 | LECTURE EXAM #2 (includes material covered 7/11 - 7/20) | |
| 7/25 | Evolution (Chapt. 14 - 16) | Field Trip - Don Edwards Wildlife Refuge (exact date/time TBD) |
| 7/26 | Microbial Life (Chapt. 17) | |
| 7/27 | Plants/Fungi (Chapt. 18) | Lab #7: ESA Tour/Natural Selection |
| 7/28 | Animals (Chapt. 19) | |
| 8/1 | Biospheres, Communities, & Ecosystems (Chapt. 30 - 32) | Lab #8 - Project Presentations/Review |
| 8/2 | Conservation Biology (Chapt. 30 - 32) | |
| 8/3 | Make-up Lecture | Lab Exam #2 (Labs 5-8) |
| 8/4 | FINAL EXAM IN THE CLASSROOM!!! (includes material covered 7/25 - 8/3) | |
| ALL ASSIGNMENTS/EXTRA CREDIT/EVERYTHING MUST BE SUBMITTED VIA CATALYST BY 11:59 PM ON 8/4!!! | | |

EXTRA CREDIT: THIS IS NOT REQUIRED!!! However, I highly suggest doing all of the extra credit or you really only have yourself to blame for not receiving the grade that you want to get in this course!

You can earn up to 50 points by doing the following:

1. Participation - up to 25 points. These are my subjective points and are based on attitude, completed assignments, effort, and all around being a positive addition to the class.
2. By writing a 2-3 pg. double-spaced paper about a controversial topic related to biology - up to 25 points. In your paper, you need to present both sides of the topic, and then present your own opinion regarding that topic. If you are unsure about your topic, feel free to ask!

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: July 1st is the last day to drop the course and receive a refund. The last day to withdraw from the course (without a "W") is July 6th. The last day to withdraw from the course without penalty (with a "W") is July 21st. **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.

ALSO PLEASE NOTE: I keep exams for 1 year and other work for 1 quarter.

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

1. **SHOW ME THAT YOU CARE ABOUT YOUR GRADE MORE THAN I CARE ABOUT YOUR GRADE!**
2. **ATTEND CLASS!!!**
3. **If you miss a class, get the notes from another student. If it's still unclear, then ask your professor!!!**
4. **Don't be afraid of a professor's office hours!**
5. **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!!!**
6. **Make your professor respect you! (see #1)**
7. **Don't procrastinate!**
8. **Remember that in the end, it is your responsibility to understand the assignment, not for your professor to explain it better!**
9. **Feel free to change your major!**
10. **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)**
11. **Remember that there is some subjectivity in determining your grade.**
12. **Don't let up!**

13. Being a student should be your #1 priority (if possible). **BEING A STUDENT IS YOUR EMPLOYMENT.** This 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!
14. Don't be in a hurry - what's another quarter/semester?
15. Study in a way that's best for you, whether that be in groups, at Starbucks, in a library, cramming, whatever!!!
16. Take advantage of extra credit!
17. Take advantage of opportunities presented (i.e. review sessions/study guides)!
18. A W is better than a D or F!!!
19. It's a competitive world. Be competitive in college! Don't settle!!!

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.