Welcome to Biology 10!

Course Section:
The Living World; 3 units; Section 3, Code 20326, TTh, 10:30 - 11:45; Meets: Sci-142

Textbook:
Required: Customized Biology, 8th edition; by Sylvia S. Mader (insert of Insel/Roth), 2004.

Instructor:
My office is in DH 451. My scheduled office hours are TTh 12:00 – 1:00. I have a mailbox in the Biology Office, DH 254. My Voice Mail number is (408) 924-4869. You do not need to phone me to report emergencies and other absences. A phone call will not affect your grade in any way. I do not use e-mail for students. I do not have a Biology 10 web site.

Grade Checks and Official Business:
After the first day, all grade checks, confirmation of grades, add codes, drop forms, reports of incorrect scores or unrecorded grades, requests for INC’s, clearing of INC’s, and all other clerical work relating to grades and registration must be dealt with during my office hours.

Course Objectives:
All life science courses focus on six major concept areas:

- **Structures and functions of living organisms.**
  - We will cover the biology of the cell, which is the basic unit of all life, and discuss the structure and function of several representative human organ systems.

- **Levels of organization of living systems, from atom to planet.**
  - We will begin at the atomic and molecular level, and then proceed through the cell, to the organism, and then to the ecology of populations, communities, and the biosphere.

- **Strategies for survival and reproduction.**
  - We will study the effects of various diets, the use of tobacco, alcohol, and other drugs, HIV and AIDS, human sexuality and reproduction, and healthy pregnancies.

- **Patterns of evolution.**
  - We will observe the patterns of evolution as shown in the fossil record of the history of life on Earth, with emphasis on tracing our own human evolutionary history.

- **Principles of genetics, including the basis for variation.**
  - We will see how Mendel’s experiments revealed the laws of heredity, how they apply to human genetics, and how DNA codes for variation and how biotechnology can be used. Interaction of organisms and their natural environment.

- **We will study the ecological relationships of all life, with an emphasis on human beings, with the physical world, and we will see how our actions effect the planet.**

Course Description:
Biology 10 is an introductory level general biology lecture course that satisfies the general education requirement for a Life Science without a lab. This course assumes no background or interest in biology; if you have a background or an interest, so much the better! I intend to make this course as relevant to your life and to your role in society as possible.

The six major concept areas described above are interwoven throughout the semester. The lecture material is divided into four Units: 1) Molecular Biology, Cell Biology, and Human Genetics; 2) DNA, Evolution, and the Diversity of Life on Earth; 3) Structure and Function of the Human Body, and Genetic Engineering; 4) Ecology and Environmental Science.

Goals for Core General Education Classes in Science:
Science is a continuous and adaptive process through which we discover and communicate how the natural world works, separate facts from inference, and establish testable frameworks. All students should master essential quantitative and qualitative skills that are necessary to understand scientific knowledge and methods to incorporate these processes into the workplace and everyday life experiences.
Exams:
Exams are handed out when class begins. If you come in late on exam day, you may not be given an exam. If you come in after the first test has been turned in, you will not be given that exam. There will be three midterm exams, and one final. Each is worth 100 points. The exams will be 50 multiple choice questions, using a Scan-tron 882 form, and a #2 pencil. Exam grades will be posted outside DH 451, using a personal secret code (remember yours). Your Scan-tron and the test key will be available in my office for two weeks after each exam, so you can see what you missed and discuss the questions.

Make-up Exams:
No one is automatically entitled to a make-up exam. Make-up exams will only be given for sufficient reason (documented medical or legal problems, not scheduling difficulties), and they will be essay or oral exams. All make-ups must be done during my regularly scheduled office hours. Make-up exams must start at the beginning of my office hour. You do not need to contact me in advance. Just come to my office. You do need to take the make-up within two weeks. After that time, you will be given a zero for that test. (If you are out ill for more than two weeks, you have missed a significant part of the class.) Missing the final means getting an INC for the course.

Attendance:
Regular attendance is strongly encouraged. EXAMS ARE DIRECTLY BASED UPON WHAT IS COVERED OR ASSIGNED IN CLASS. We will be covering a large amount of material in a short period of time, so it is vital to keep up with the information. Also, topics will be covered in class that do not occur in the text, and some videos may be shown. For any class, “getting the notes” from someone is a poor substitute for hearing the lecture and taking your own notes. Therefore, I do not provide my lecture notes for students to copy.

Student Learning Objectives for Core General Education Classes in Science:
Students should be able to:
Use the methods of science and knowledge derived from current scientific inquiry in life science to question existing explanations

Understand how scientists use testable hypotheses, and evaluate experimental data.
Demonstrate ways in which science influences and is influenced by complex societies, including political and moral issues
Know how our knowledge of genetics, anatomy and physiology, and ecology affect our daily personal lives, our personal choices, and the society we live in.
Recognize methods of science, in which quantitative analytical reasoning techniques are used Understand the importance of numerical data in establishing such things as risk in genetic counseling, or correlation between carbon dioxide levels and global warming.

Writing Requirement:
The minimum writing requirement for a G. E. course is 1500 words in a language and style appropriate to the discipline. For us, this means that the writing will be factual, documentary style writing, rather than creative or poetic. I do not require a strict “scientific journal” style of writing. Your writing shall be assessed for correctness, clarity, and conciseness. You will have two major writing assignments, of 750 words each. These two writing assignments are made in order to satisfy the writing requirement for Core G. E. Classes in Science. One will be due early in the semester, and the other will be due later. See the schedule for the due dates.

In order to make this assignment as relevant to you as possible, and to facilitate your learning objectives, you will have several choices (listed below). You may make the same choice twice (e.g. two field trip reports). Be sure to cite all of your sources. Citations must include the author’s name(s)- for Internet sources a URL alone is insufficient. Plagiarism will not be tolerated, and will be dealt with according to University Policy.

Field Trip
You may go on a self-guided field trip to a museum, zoo, aquarium, or natural site, and turn in a report based upon what you saw. A page of suggested sites is provided. Example: Go to California Academy of Sciences, tour their “History of Life on Earth” exhibit, and then write a paper relating what you saw to the evolution lectures.
Research Paper
You may do a standard research paper on any topic related to the lecture material.
Example: Read about how radioactive isotopes are used for absolute dating of fossils. Try your textbook, or the library, or the Internet for sources. Then write a paper explaining how it is done, and relate it to material in the evolution lectures.

Current Events
You may select, and analyze for accuracy, one or more current newspaper or magazine articles, or a web site, on a scientific or “pseudoscientific” topic.
Example: Find an article of interest, such as a newspaper report on a “new cure for AIDS”. Use the information learned in class or gained from your own research, and what you have learned about scientific methods, to analyze the accuracy of the report.

Relation to Society
You may investigate a political or moral ramification of some aspect of genetics, evolution, ecology, or any other topic related to the lecture material.
Example: Investigate “ecological racism” - the tendency to locate hazardous waste dumps in minority communities. Be sure to include specific facts, such as the names of some sites and what is dumped there. Don't write only about your feelings about it.

Specifications for the Paper
1. LENGTH. At least 750 words, but no more than 800 words. (Count them or use the “Word Count” feature on your word processing tool.) I don’t know how many pages; I am not specifying the font size, spacing of lines, or margin sizes! (750 words is “about three pages”, using a typical font, spacing, margins, and word choices.)
2. Must be word-processed or typed. Do not submit a hand-written paper.
3. The first page must include full data, including your name, which class and class section you are in, which assignment this is, and the title of the paper.
4. Cite your reference(s) in a bibliography at the end of the paper. A citation gives the author’s name; listing a website name (URL) is NOT an acceptable citation. One reference is required for this short paper; two or more references may be used.

Each report will be worth 25 points. There is a one class “grace period” with a -5 late penalty. After the “grace period”, the paper will not be accepted, and I will record a score of zero. I will only accept papers turned in during class. I will not accept papers put in my mailbox or under my office door. If this policy is ignored, the paper will be given a maximum of 13 points. “Excused absences” do not affect the late penalty schedule. If you know you are going to miss class, you can turn the paper in early. If you are ill, or have personal problems, you have the standard one class grace period.

SJSU GRADING STANDARDS FOR WRITING
An “A” paper (22.5 to 25 points) will:
1. Have a good amount of solid scientific content, such facts, data, and specific examples.
2. Be completely correct: Have no factual errors, misconceptions, or misinterpretations.
3. Show clarity. Be “easy to read”, so the reader can understand what is being said.
4. Be concise. Every word will be meaningful. Have no “extra filler material” added.
5. Use proper English. Have no grammatical errors.
6. Have all words spelled correctly. (Use the spell checker, but also edit your paper).

A “B” paper (20 to 22 points) will:
1. Have much solid scientific content, such as facts, data, and specific examples.
2. Be mostly correct: Have one or two factual errors, misconceptions, or misinterpretations.
3. Show a lot of clarity. Be “easy to read”, so the reader can understand what is being said.
4. Be concise. Most words will be meaningful. Have little “extra filler material” added.
5. Use mostly proper English. Have one or two grammatical errors.
6. Have most words spelled correctly. (Use the spell checker, but also edit your paper).
A “C” paper (17.5 to 19.5 points) will:
1. Have some solid scientific content, such facts, data, and specific examples.
2. Be somewhat correct: Have some factual errors, misconceptions, or misinterpretations.
3. Show some clarity. Be “readable”, so the reader can understand what is being said.
4. Be less concise. Many words will be meaningful. Have some “extra filler material” added.
5. Use mostly proper English. Have three to five grammatical errors.
6. Have most words spelled correctly. (Use the spell checker, but also edit your paper).

A “D” paper (15 to 17 points) will:
1. Have little solid scientific content, such facts, data, and specific examples.
2. Be mostly incorrect: Have many factual errors, misconceptions, or misinterpretations.
3. Show little clarity. Be “difficult to read”, so the reader has trouble understanding what is being said.
4. Be less concise. Some words will be meaningful. Have some “extra filler material” added.
5. Use some proper English. Have more than five grammatical errors.
6. Have many words spelled correctly. (Use the spell checker, but also edit your paper).

An “F” paper (0 to 14.5 points) will:
1. Have no solid scientific content, such facts, data, and specific examples.
2. Be completely incorrect: Have lots of factual errors, misconceptions, or misinterpretations.
3. Show no clarity. Be so “hard to read” that the reader cannot understand what is being said.
4. Be less concise. Few words will be meaningful. Have much “extra filler material” added.
5. Use improper English. Have more than ten grammatical errors.
6. Have few words spelled correctly. (Use the spell checker, but also edit your paper).

Course Grading:
Learning factual content is the main goal; grades are important because they reflect how much you have learned. The true measure of your success in any class is what you remember a year after the class is over, and what you can take from the class and use in your life.

I do not “give grades”. I assign the grade that you earn, based upon your total numerical score, from three midterms, at 100 each; one final at 100; and two writing assignments at 25 each. TOTAL POSSIBLE POINTS = 450

I do not offer extra credit. I do not “curve” the grades. I do not negotiate for grades. I cannot use subjective factors, such as how much effort you put in, to influence a grade. I cannot change the grade you earned because you “need” a better grade to pass the course, to stay in school, and so forth. I feel that it is important to treat everyone fairly and equally. The same rules, policies, and standards apply to everyone. Please do not ask me for special favors.

You can check your course letter grade at any time by calculating your current total percentage of the possible points to date. You can also calculate your maximum possible grade for the class, or how many points you need to “get the lowest C”- if that is your concern.

A+ is 97% - 100%  B+ is 87% - 89%  C+ is 77% - 79%
A is 93% - 96%  B is 83% - 86%  C is 73% - 76%
A- is 90% - 92%  B- is 80% - 82%  C- is 70% - 72%
D+ is 67% - 69%  D is 63% - 66%  F is 59% and below.
D- is 60% - 62% .

Drops:
University policy only permits drops for “clear and compelling reasons”. These reasons must be documented. Low grades are NOT a legitimate reason to drop any course. Dropping a class is your responsibility; I do not take roll, or drop people. Failure to drop yourself will result in a U, unauthorized withdrawal, on your records.
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<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>General Topic</th>
<th>Reference Reading</th>
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<td></td>
<td></td>
<td>Chemical Foundations of Life: Atoms</td>
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<tr>
<td>1</td>
<td>Th Jan. 27</td>
<td>Bonding and Biological Molecules</td>
<td>Chapter M-2 and M-3</td>
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<td></td>
<td>T Feb. 1</td>
<td>Macromolecules, Diet, and Nutrition</td>
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<td>2</td>
<td>T Feb. 8</td>
<td>Cell Theory, Cell Types, Stem Cells</td>
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<td>Th Feb. 10</td>
<td>Cell Membrane and Organelles</td>
<td>Chapter M-4 and M-5</td>
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<td>3</td>
<td>T Feb. 15</td>
<td>Scientific Method and Gregor Mendel</td>
<td>Chapter M-11</td>
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<td></td>
<td>Th Feb. 17</td>
<td>Mendel and Modern Genetic Theory</td>
<td>Chapter M-11</td>
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<td>T Feb. 22</td>
<td>Human Genetics: Genes, Chromosomes</td>
<td>Chapter M-12</td>
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<td>Th Feb. 24</td>
<td>EXAM ONE</td>
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<td>5</td>
<td>Th Mar. 1</td>
<td>Structure and Function of DNA</td>
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<td>Th Mar. 3</td>
<td>Modern Evolutionary Theory</td>
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<td>6</td>
<td>T Mar. 8</td>
<td>Charles Darwin and Natural Selection</td>
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<td>Th Mar. 10</td>
<td>Origin of Species</td>
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<td>T Mar. 15</td>
<td>Early Evolution of Chordates</td>
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<td>Evolutionary Transition to the Land</td>
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<td>Human Evolution</td>
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<td>Mar. 29, 31</td>
<td>SPRING BREAK</td>
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<td>T Apr. 5</td>
<td>Drugs, Brain, and Nervous System</td>
<td>Chapter Insel-7 and I-8</td>
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<td>Th Apr. 7</td>
<td>Drug Addiction and Psychoactive Drugs</td>
<td>Chapter I-7 and I-8</td>
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<td>T Apr. 12</td>
<td>Alcohol and Tobacco and Human Health</td>
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<td>Th Apr. 14</td>
<td>Human Sexuality and Male Anatomy</td>
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<td>11</td>
<td>T Apr. 19</td>
<td>Female Anatomy and Pregnancy</td>
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<td>Th Apr. 21</td>
<td>Genetic Engineering</td>
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<td>EXAM THREE</td>
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<td>Th Apr. 28</td>
<td>Population and Human Impact</td>
<td>Chapter M-46</td>
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<td>13</td>
<td>T May 3</td>
<td>Density-Dependent Population Factors</td>
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<td>Th May 5</td>
<td>Community Ecology: Habitat and Niche</td>
<td>Chapters M-47, M-50</td>
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<td>14</td>
<td>T May 10</td>
<td>Interactions in a Community</td>
<td>Chapters M-47, M-50</td>
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<td>Th May 12</td>
<td>Ecosystems and Energy Flow; Biomes</td>
<td>Chapters M-48, M-49</td>
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<td>15</td>
<td>T May 17</td>
<td>Biogeochemical Cycles; Global Warming</td>
<td>Chapters M-48, M-49</td>
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<td>16</td>
<td>F May 20</td>
<td>FINAL EXAM 9:45 until about 11:00</td>
<td>Ch: M-46, 47, 48, 49, 50</td>
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SUGGESTED FIELD TRIP SITES (You may choose other sites.)

Alum Rock Park
Alum Rock Park is located in the foothills east of San Jose. The old road is now closed; please check a map for directions. The park has four ecosystems: grassland, foothill woodland, chaparral, and riparian. There are self-guiding trail tours, including the Mineral Springs loop. There is a small interpretative center with exhibits, rangers, and printed trail guides. The Youth Science Institute has live animals and exhibits.

Oakland Museum
The Oakland Museum is in downtown Oakland. Take BART or from 80 north, exit on Oak Street. The museum has one floor devoted to California Natural History. There are many exhibits and dioramas, showing California plants and animals as seen when taking a trip from the coast across California into the Nevada desert.

Palo Alto Baylands
Palo Alto Baylands is located on the edge of the San Francisco Bay in Palo Alto. From 101 north, take Embarcadero Road east and follow the signs to the edge of the bay. The park features salt marsh and mud flat habitats. There are walking trails along earth dikes, and on wooden catwalks directly over the salt marsh. The Lucy Evans Interpretative Center stands on stilts over the marsh. It has some labeled exhibits, and a "hands-on" interactive room.

Coyote Hills Regional Park
Coyote Hills is located along the San Francisco Bay in Fremont. From 880 north, exit on 85 towards the Dumbarton Bridge. Exit at Paseo Padre Parkway. Turn on to Patterson Ranch Road. The park features freshwater marshes, coastal woodland, chaparral, and grassland ecosystems. It has an Ohlone Indian village site. There is also a fine museum, with dioramas, and Ohlone Indian artifacts.

California Academy of Sciences
The California Academy of Sciences in Golden Gate Park, in San Francisco is now closed for renovation. Much of the collection has been moved to a temporary site in downtown San Francisco, at 875 Howard Street. Obviously, the large, permanent exhibits are not on display. However, about 85% of the fish from Steinhart Aquarium are being moved.

Big Basin State Park
Big Basin, Henry Cowell, Portola, and many other state parks are in the redwoods. Many have self-guided trails and small museums. Rangers can help interpret the natural history. To get to Big Basin, from Saratoga or Santa Cruz take Highway 9 to Highway 236; follow Highway 236 nine miles to the park.

Monterey Bay Aquarium
The aquarium is in Monterey, at the end of Cannery Row. From Highway 1 South, exit at Pacific Grove/Del Monte exit and follow the signs. This is an outstanding aquarium, with many live fish, invertebrates, and even sea otters. The new open ocean exhibit is huge. There are many labeled exhibits, and live docents to answer questions. There are open labs and touch tanks where you can handle live animals.

Pinnacles National Monument
Pinnacles National Monument is south of Hollister. From San Jose, take 101 south to Gilroy; from Gilroy on 101, take Highway 25 south 42 miles to Highway 146; turn right and drive 5 miles to the Visitor Center. The monument has rugged volcanic spires, talus caves (may be closed to protect bats at some times), and many interpretive trails through chaparral and oak woodland. The visitor center has exhibits, and rangers on duty.

Natural Bridges State Park
Natural Bridges is located on the beach in Santa Cruz. There are rocky tide pools, sandy beach, and a small visitor center. Take Highway 17 to Santa Cruz; in Santa Cruz, drive north on Highway 1; turn left on Swift Street, right on Delaware, then left on Swanton.