

**ELEMENTS OF BIOLOGY**  
Biology 101 – Section 06  
CALIFORNIA STATE UNIVERSITY, FULLERTON  
Fall term 2004

**MEETING PLACE AND TIME: MH 121 MWF 12-12:50**

Instructor: Sean Walker

Office: MH 389, Lab MH 342

Office Hours: TR 2:30-4:30 PM, M 9:00-10:00 AM & by appointment

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Web-Site: <http://biology.fullerton.edu/swalker>

Course Web Site: The course web-site will be on blackboard. You should be able to access it through <http://my.fullerton.edu> and follow the links to blackboard then to Biol 101-06

**Required Texts and Materials:**

Campbell, Reece & Simon. 2004. Essential Biology with Physiology. San Francisco: Benjamin Cummings Publishing.  
Scientific American. 2004. Current Issues in Biology. Volume 1, Issue 1. Scientific American Publishers. (bundled with Campbell textbook)

**Biology 101 is a General Education course:**

1. Biology 101 meets the requirements of section III (Disciplinary learning) A (Mathematics and natural sciences) 2 (Natural sciences) c (Life Science.)
2. Learning goals for the Natural Sciences category include:
  - a. To understand how different themes of science make connections within and between the different scientific disciplines.
  - b. To apply scientific methodology through active experimental methods and experiences.
  - c. To evaluate the validity and limitations of theories and scientific claims in interpreting experimental results.
  - d. To understand the dynamic and evolving nature of the sciences.
  - e. To recognize the importance of scientific paradigms and methods in understanding scientific concepts.
  - f. To solve theoretical or experimental problems that require knowledge of science concepts and scientific reasoning.
  - g. To understand the issues raised by science for contemporary society and to appreciate the relevance and application of science in everyday life.
  - h. To understand that there is a synergism between science and technology – advances in science drive new technologies and new technologies make possible

new advances in science. The principles of science provide the underpinnings of technology and, consequently, technology should be taught in conjunction with content directly linked to the scientific disciplines.

3. The Life Sciences category includes student learning of the following major scientific ideas:
  - a. Living things are made of smaller structures whose functions enable the organism to survive.
  - b. Living things depend on each other and the physical environment as they interact to obtain, change, and exchange matter and energy.
  - c. The great diversity of living things is the result of billions of years of evolution of organisms through the mechanisms of heredity, random change, and natural selection.

### **Course Description and Objectives:**

“We’ve arranged a global civilization in which most crucial elements – transportation, communications, and all other industries; agriculture, medicine, education, entertainment, protecting the environment; and even the key democratic institution of voting – profoundly depend on science and technology. We have also arranged things so that almost no one understands science and technology. This is a prescription for disaster. We might get away with it for a while, but sooner or later this combustible mixture of ignorance and power is going to blow up in our faces.” (Carl Sagan. 1996. *The Demon-Haunted World: Science as a Candle in the Dark.*)

In order to meet the General Education objectives for the Natural Sciences and Life Sciences, this course will introduce you to the basic principles of biology (see Life Sciences goals), and will give you the tools to think like a biologist (see Natural Sciences goals). Your professor believes that you need to understand how the natural world works if you are going to have a good life, get a good job, and be a good citizen. The critical and creative thinking skills that you develop as you “do” science will help you in many areas of your life. For example, if members of your family have suffered from diabetes, how would you use genetic information about susceptibility to diabetes in thinking about your diet, and in planning whether to have children? If you choose not to have children, or to wait, what form of birth control should you use? If you choose to have children, should you feed them genetically engineered food? What about organic food? Should you take your family on holidays to areas that are vulnerable to extinction due to human contact? Should you take them to areas in which there are serious viral outbreaks?

In this course, you will learn:

1. the basic principles of biology;
2. how to use these principles to analyze biological problems; and
3. how to make decisions based upon your analysis.

To meet these goals, you will:

1. critically read and evaluate assigned texts;
2. contribute to lectures and small group discussion and problem-solving;
3. prepare for and take exams that will test your understanding of the material; and
4. apply your understanding, by writing two short papers reviewing a biological issue that is current and controversial.

### **Course Requirements:**

**1. In-class work and participation:** This course combines short lectures, discussions, and group and individual problem-solving. Because you will be a member of a discussion group throughout the course, you are too important to miss class. Also, material for the exams will come from both lecture material and from readings.

**2. Exams:** You will have four exams which will count for 75% of your grade. The exams will test your understanding of the material and your ability to apply your understanding in solving novel problems. The best way to prepare for exams is to keep up on your reading, take coherent, organized notes and participate actively in group discussions and problem-solving. There will be four non-cumulative exams. The first exam is worth 15% of your grade and the second, third and fourth exams are each worth 20%. Exams will be a combination of multiple choice, true false, and short answer questions.

**3. Research papers:** The writing assignment meets the Core Competency requirement for writing in the General Education curriculum. It will require the organization and expression of complex data and ideas. You will write two 3-page papers reviewing a biological issue that is current and controversial. You will receive detailed comments on your first paper so that you are able to improve your writing in the second paper. Your grade for the paper will be based both on the content of what you write AND the quality of your writing. **Penalty for late submission is 10% of the available marks per day or part of a day.** The first paper is worth 10% of your final grade, and the second paper is worth 15% of your final grade. Please see the writing assignment handout for further details.

To review, your grade in this course will be assessed as follows:

Exams	
09/25	15%
10/20	20%
11/15	20%
12/17	20%
Research papers	
Paper #1	10%
Paper #2	<u>15%</u>
TOTAL	100%

**Grades will be assigned based on the following scale:**

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
0 – 59%	F

**Accommodations for Special Needs:** Students with documented learning disabilities should make us aware of the need for accommodations. We will work with you to ensure that you have the best possible learning experience.

**Academic Honesty and Original Work:** As a member of the CSUF academic community, you are expected to submit only your own, original work for all assignments and exams. We feel strongly that maintaining academic honesty is crucial to maintaining a vibrant and productive learning community, and so will prosecute fully any plagiarism or cheating. If you are ever unsure whether something you or a fellow student is about to do is intellectually dishonest, please err on the conservative side and ask. First offense: 0 on the assignment. Second offense: F for the course. We are required to report any cheating or plagiarism to the Vice President for Student Affairs.

University policy states that any form of academic dishonesty is ground for failure of the course and dismissal from the university. The University Policy Statement on academic dishonesty can be viewed by visiting the following website:  
<http://www.fullerton.edu/senate/PDF/300/UPS300-021.pdf>.

Here are some CSUF websites that will provide more information on plagiarism and how to avoid it!

**1. STUDENT GUIDE TO AVOIDING PLAGIARISM: HOW TO WRITE AN EFFECTIVE RESEARCH PAPER**

[http://fdc.fullerton.edu/learning/Academic%20Integrity/student\\_guide\\_to\\_avoiding\\_plagia.htm](http://fdc.fullerton.edu/learning/Academic%20Integrity/student_guide_to_avoiding_plagia.htm)

**2. DEAN OF STUDENTS OFFICE: JUDICIAL AFFAIRS**

<http://www.fullerton.edu/deanofstudents/judicial/Plagiarism.htm>

**3. PLAGIARISM DETECTION USING TURNITIN.COM**

<http://fdc.fullerton.edu/catalog/turnitin/>

**4. WHAT IS PLAGIARISM?**

[http://guides.library.fullerton.edu/historians\\_toolbox/unit6/tutorial1/u6t1p2plagiari.htm](http://guides.library.fullerton.edu/historians_toolbox/unit6/tutorial1/u6t1p2plagiari.htm)

**Tentative Lecture & Course Schedule**

Week		Topic	Readings	Assignments Due
1	8-23 8-25 8-27	Introduction to the Course/Scientific Method	Chapter 1	
2	8-30 9-1 9-3	Introduction to Chemistry for Biology Introduction to Cells	Chapter 2 & 3 Chapter 4	
3	9-6 9-8 9-10	<b>Labor Day-no class</b> Cell Structure and Function	Chapter 5	
4	9-13 9-15 9-17	Cell Struc & Func. Mitosis & Meiosis	Chapter 5 Chapter 8	
5	9-20 9-22 9-24	Mitosis and Meiosis Inheritance <b>Midterm I</b>	Chapter 9	
6	9-27 9-29 10-1	Inheritance Inheritance Inheritance	Chapter 9 Chapter 9 Chapter 9	
7	10-4 10-6 10-8	Molecular Biology of the Gene	Chapter 10	
8	10-11 10-13 10-15	Introduction to Evolution	Chapter 13	Writing Assignment #1

Week		Topic	Readings	Assignments Due
9	10-18 10-20 10-22	Macroevolution. <b>Midterm II</b> Macroevolution	Chapter 14  Chapter 14	
10	10-25 10-27 10-29	Microbial Evolution Plants and Fungi	Chapter 15 Chapter 16	

11	11-1 11-3 11-5	Animal Evolution	Chapter 17	
12	11-8 11-10 11-12	Unifying Concepts of Animal Structure Intro to Ecology	Chapter 21  Chapter 18	
13	11-15 11-17 11-19	<b>Midterm III</b> Intro to Ecology	Chapter 18	
14	11-22 11-24 11-26	<b>NO CLASSES-FALL BREAK</b>		
15	11-29 12-1 12-3	Communities and Ecosystems	Chapter 19	
16	12-6 12-8 12-10	Human Impact on the environment	Chapter 20	
17	12-14 12-17	<b>Writing Assignment #2 Due by 5 pm Final Exam, 12:00-13:50</b>		

### **Classroom Safety:**

In the event of an emergency such as an earthquake or fire:

Take all of your personal belongings and leave the classroom.

Use the stairways located at the east, west or center of the building.

Do not use the elevator. They may not be working once the alarm sounds.

Go to the lawn area towards Nutwood Avenue.

Stay with your class members and wait for further instructions.

For additional information on exits, fire alarms and telephones, Building Evacuation Maps are located near each elevator.

Anyone who thinks they might have trouble evacuating the building, please see me after class.

Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to the University Police. Dialing 911 on your cell phone will connect you with the Highway Patrol. Tell the CHP dispatcher that the CSUF Police is the responding agency. Stay on the line until asked to hang up.

If you want to bring visitors to the classroom, you must obtain permission from the instructor in advance and you must sign a Volunteer Form.

Visitors to the lab must obtain permission from the Chairman and must sign a volunteer form.

There is no smoking within 20 feet of any campus building. This includes the MH balcony.