

Course Syllabus
BIOLOGY 7: INTRODUCTION TO THE SCIENCE OF BIOLOGY
Spring 2011

Contact Information:

Dr. Adam Rechs Office: Sequoia 120B
Phone: (916) 278-6244 E-Mail: rechs@csus.edu
Office Hours: MWF from 11 a.m. - noon; or by appointment.
Web page: <http://www.csus.edu/indiv/r/rechsa/index.htm>

Course Information:

Lecture: (MWF) Sequoia Hall, room 316; 9:00 a.m. – 9:50 a.m.

Lab: (MW) Sequoia 110; 10:00am – 11:15pm (sec 2); 12pm – 1:15pm (sec 3); 2:00pm – 3:15pm (sec 4)

Course Description: BIO 7 satisfies the General Education Area B requirements as a lecture and laboratory course. It is also a required course for students in the Liberal Studies major, as subject matter preparation for obtaining a Multiple Subject Teaching Credential and teaching elementary school. Thus, BIO 7 is aimed at developing an appreciation of living things and their interactions, an understanding of how ideas are verified scientifically, and a foundation for learning more about the world around us. Your knowledge of living things and the process of science will help you to make decisions about your personal lifestyle, professional activities, and as a member of society.

This course has been designed specifically for students wanting to become elementary school teachers. In 1998 the Commission for the Establishment of Academic Content and Performance Standards reviewed the recommendations of many science and education groups to arrive at a set of California Science Content Standards. BIO 7 will address many of those standards and beyond, with the hope that your understanding of biology and the scientific process will help you appreciate, learn more about, and maybe teach others about living things around us.

BIO 7 is designed to

- Introduce major concepts of biology at the cellular, organismal, and population levels (including concepts of genetics, ecology, and evolution).
- Introduce scientific approaches to asking and answering questions about living things and their relationships.
- Stimulate interest in organisms and their activities.
- Integrate writing, critical thinking, and mathematical skills in the study of biology.
- Model varied teaching and learning approaches.

Desired Student Outcomes: On completion of BIO 7 students should be able to describe

- what distinguishes living from non-living things and the properties common to all life forms.
- how organisms are classified based on differences and similarities in structure, behavior, and lifestyle.
- the most common groups (kingdoms and phyla) of organisms.
- how water, ions, carbohydrates, lipids, proteins, and nucleic acids are important for all life forms.
- the structures of prokaryotic and eukaryotic cells.
- how properties of life are maintained at the cellular level.
- how living things are organized into higher and higher levels starting from atoms, to molecules, to organelles, to cells, often to tissues, organs, organ systems, to individuals, to populations, to communities.
- how properties of life are maintained at the organismal level through specialized cells and organ systems.
- how genetic information in DNA provides information for the structures and activities of organisms, and how genetic variation can arise.

- how genetic information is copied and passed on from cell to cell and generation to generation.
- how organisms interact with each other and their physical environment.
- the composition of an ecosystem and how energy flows and matter cycles in an ecosystem
- how interactions between environments and organisms result in some organisms reproducing more than others.
- how life forms are believed to have a common origin and to have evolved into diverse forms now existing and extinct.
- how scientific investigations are conducted and how their findings are limited by experimental and random errors.
- what K-8 teachers are expected to teach in Life Science in California.
- how a variety of individuals and cultures have contributed to and benefited from our existing knowledge in biology.

On completion of BIO 7, students should be able to

- access and evaluate printed and electronic sources of information.
- use appropriate observational (e.g. microscopes and lenses) and measuring (e.g. balances and meter sticks) instruments.
- identify independent, dependent, controlled, and uncontrolled variables.
- design, execute, interpret, and communicate about a scientific investigation.

Texts:

Recommended: *Discover Biology, third edition*, by Cain, Damman, Lue, and Yoon, WW Norton, 2007
 Required: *BIO 7 Laboratory Manual*, by Melanie Loo, Elaine Kent, and Jennifer Lundmark

Course Format: The course will be conducted with three hours of lecture and two 75-minute laboratory sessions per week.

Attendance: While lecture attendance will not be recorded, there will be numerous activities and discussions in lecture and lab, which are designed to aid your learning. Your learning will be enhanced by preparing for class and active participation; **some in-class activities will be graded. Attendance and participation for the lab is mandatory.**

Evaluation: Three midterm exams and a final will be, each worth 100 points. The exam format will be scan-tron and short answer. **A #2 pencil and a scan-tron (form 882E) are required.** For each test approximately 2/3 of the exam points will come from multiple-choice questions and 1/3 of the points will come from short answer questions. Additional assignments (in class group problems or essays) may also be given during the course at the instructor’s discretion. Lecture exams and in-class assignments will contribute 70% of your overall score while the laboratory portion of the course will contribute to 30% of your overall score.

Make-up exams: Exam’s may only be taken on a day other than the scheduled date for serious or compelling reasons.

Grading: Final letter grades will be assigned as follows:

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

Breaking points for pluses and minuses will be decided later. If the class average is relatively low a curve will be used to determine the letter grades.

Drops or Incompletes:

Students may drop the course during the first two weeks of class for any reason. Dropping any day after this requires signatures and will be denoted on your transcripts with a “W”. February 18th is the last day to

WITHDRAW for serious or compelling reasons that are documented. This requires a petition to be approved by the instructor, the department chair, and the Dean of the College.

Academic Misconduct: Any type of communication between students on an exam is considered cheating and will not be tolerated. Using outside resources or looking at another student's exam is also considered cheating. Students who fail to comply will be given a zero for that exam, the incident will be reported to the Biology Department Chair and the Dean of Students, and the student will receive 0 points for the work. A second offense will result in an "F" grade in the course.

All work submitted by the student must be their own work. Failure to do so will be considered plagiarism. This includes using someone else's words or work without giving credit to that person. Plagiarized work will receive no credit and may be reported to the Biology Department Chair.

Tips for doing well in the course:

- Study. Well of course you are going to study, but most students don't study enough. On average, you should be spending two hours studying for every hour of lecture. That's six hours of studying per week for this class alone.
- Don't study alone. Finding people in the class to study with is extremely beneficial. Ask each other to explain how each process works.
- Ask questions when you aren't clear on a concept. Do this in lecture, lab, and office hours. Odds are if you don't understand something then neither do a lot of other people in the class. Since much of the information builds on itself, don't let me move on to another concept until you understand what I just went over.
- Take advantage of office hours. I guarantee that one-on-one in office hours I can make any concept clear to you. This is because in office hours it is much easier to identify where misconceptions lie and what hurdles are preventing you from understanding a concept fully.
- Come prepared to lecture and the labs. Reading up on the lab manual before you arrive in lab will not only allow you to finish faster but it will allow you to concentrate more on the physiology behind the exercises rather than trying to figure out what the next step is.