

CONCEPTS OF BIOLOGY

MCDB/EEMB 20

SUMMER 2005 Session B

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Office: Biological Sciences II, room 3127 Office hours: M, T 1:30-2:30, or by appointment

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Office: Biological Science II room 3173 Office hours: W,R 2-3, or by appointment

Lectures: MWF 12:30-1:55

Psychology 1824

Discussion sections: R 11-12:20 or 12:30-1:50

BSIF 1217

Textbook. **Biology Today and Tomorrow.** (C. Starr) 2005. Thompson Brooks/Cole. Available at the UCSB Bookstore.

Reader. **Controversial Issues in the Biological Sciences** (B. Tanowitz and T. Even). available at AS Publication Services

Course Objectives. Biology is in the news: bioterrorism, WestNile Virus, Bird flu, AIDS, stem cells, endangered species, GMOs, emerging diseases, animal rights, nutritional supplements, organic foods, bioremediation, biodiversity, genetic discrimination, DNA evidence, world hunger, gene therapy, global warming. The list of bionews topics grows almost daily as advances in the biosciences provide unprecedented opportunities together with significant challenges that are directly affecting the destiny of modern society. As humans embark on this “Century of Biology,” a basic understanding of fundamental biological concepts is increasingly necessary for educated participation in critical social and cultural dialog. The primary objective of this course is to provide you with a deeper understanding of the living world that will enhance your appreciation of it and your critical thinking about it.

Biology is a dynamic and exciting subject that should NOT INTIMIDATE YOU. The nature of the summer school schedule may make it feel like we are flying – flying through new material taught in a new language with a latin/greek-based vocabulary full of new symbols and shorthand abbreviations. **Relax. Don’t Stress.** This feeling is normal. For the next six weeks we will be covering the material normally taught over the course of a 10-week quarter. The course will be particularly difficult if you allow yourself to fall behind. If you have any questions, please don’t hesitate to come and see me immediately. Sometimes a few minutes up front can clear up complicated concepts and save many hours of difficult studying. Good luck; I hope you enjoy the course and your summer in Santa Barbara!

Prerequisites. None.

Examinations. There will be one midterm and a comprehensive final exam. Exams are designed to test your knowledge of the course material and your ability to apply this knowledge. Each exam may include a mixture of short answer, matching, multiple choice, and True-False questions. There are no written reports required and there will be **no extra credit** for the course. There are **NO** make-up exams. If you have a problem with the exam dates, please see me ASAP.

Readings. You are well advised to keep up with the assigned reading since the abbreviated six-week summer term will make cramming all of the reading into the last one or two days before an exam nearly impossible. Material from the reading may constitute approximately 20% of the exams. Like all disciplines, biology has a unique language, and attaining a working level of “bio-literacy” requires that you become familiar with biology’s unique vocabulary. The **BOLD-FACED** terms in the textbook are key words that you will be expected to understand for the exams.

Grades. Exams will be worth 75% of your grade. Discussion sections are mandatory and will comprise 25% of your grade. Discussion grades will be derived from your attendance (50 pts) and participation (50 pts), and your scores on 4 quizzes(4@25 pts each=100 pts). Missing any more than one discussion session during the 6-week summer term will result in an incomplete grade for the course.

Midterm	300 points
Final Exam	500 points
<u>Discussion</u>	<u>200 points</u>
TOTAL	1000 points

Tentative Lecture Schedule
(subject to change)

Summer 2005

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
M Aug 1	Introduction to living systems and biomolecules	Ch 1, 2
W Aug 3	Cells: fundamental units of life	Ch 3,4
F Aug 5	NO CLASS	
M Aug 8	Energy in life	Ch 5,6
W Aug 10	Reproduction: one makes two and two make one	Ch 7
F Aug 12	Genetics and heredity	Ch 8,9
M Aug 15	From genotype to phenotype	Ch 9,10
W Aug 17	Genomics and genetic technology	Ch 11
F Aug 19	MIDTERM EXAMINATION	
M Aug 22	Evolutionary basics: selection, speciation	Ch 12,13
W Aug 24	Living diversity: early life and the microbes	Ch 14
F Aug 26	Multicellularity	Ch 15,16
M Aug 29	How life works: the basics	Ch 17,18,20
W Aug 31	How life works: Nutrition	Ch 18, 24
F Sept 2	How life works: Circulation and movement	Ch 18, 21, 22
M Sept 5	LABOR DAY HOLIDAY	
W Sept 7	Ecology and ecosystem biology	Ch 28, 29, 30
F Sept 9	FINAL EXAMINATION	