

Bakersfield College
Biology 30: Introduction to Biotechnology/Cell Physiology
Spring 1999

GENERAL INFORMATION

Instructor: Dr. Elmer Otteson/Dr. J. Toyoshima
Office/Phone: Science & Engineering, Room 57B/395-4225
Office Hours: Monday through Friday, 9-11 am or by appointment
E-mail Address: jatoyosh@bc.cc.ca.us
Prerequisites: Chem 1A **or** Chem 2A **or** Chem 15 **and**
Biol 10 **or** Biol 11 **or** Biol 20 **or** Biol 3A
Credits: 4 units
Required text & other materials: *The Cell: A Molecular Approach* by G. Cooper
Experimental Research Notebook
Safety goggles, gloves & apron
Recommended: Dictionary of word roots
Meeting time: MW 6-9:50 p.m.
Meeting place: Math/Science building, Room 24

COURSE DESCRIPTION

An introductory biotechnology course covering basic terminology, techniques, history and future of biotechnology industries. An overview of important biological molecules, the cell, genetic and bioengineering mechanisms, gene expression and manipulations, basic lab skills, safety, and industrial techniques. **Prerequisite:** CHEM 1a, 2a or 15 and BIOL 10, 11, 20 or 3a with a grade of "C" or better. **Hours:** (108) 3 lect, 3 lab. Field trips required. **Offered:** S. **CCS:** Occupational Education. **Transferable:** CSU and private colleges.

EVALUATION OF STUDENT PERFORMANCE

Grades in the course will be based on the following:

3 midterms	300 points
Homework assignments/Activities	400
Lab Notebook	250
Comprehensive final exam	200
Project	<u>150</u>
Total	1,300 points

You must complete all assignments as scheduled. Letter grades are assigned according to the following standards:

A	90 to 100 percent	NOTE: These standards are not subject to change
B	80 to 89 percent	
C	65 to 79 percent	
D	50 to 64 percent	
F	less than 50 percent	

You will record all points earned on grade sheets, in ink. These grade sheets will be checked occasionally during the semester. The original, completed grade sheet, signed and dated, will be turned in at the time of the final exam.

MIDTERM EXAMS/HOMEWORK/OTHER ACTIVITIES

Exams are made up of a mixture of multiple-choices, fill-in, short answer and/or short essay questions. *Both* lecture and lab topics may be included. Each exam is worth 100 points unless otherwise specified. See the attached schedule of topics for the midterm exam dates.

Homework assignments and other class activities may include worksheets that require you to fill in information about each topic. Additional activities require construction of tables or models; an oral presentation may be required. Each activity is turned in for credit. Point value for each homework assignment and/or class activity will vary.

The project is intended to give the student practice in integrating information and skills acquired during the class to identify and solve a problem. The student thus demonstrates competencies described in SCANS documents, awareness of lab safety and biohazard considerations, good laboratory practices and appropriate treatment of lab waste.

CLASS POLICIES AND PROCEDURES

1. Each lecture or lab period starts at the scheduled time unless otherwise indicated by the instructor. Chronic absenteeism and/or habitual tardiness are unacceptable behaviors, and grounds for dismissal from the class. Please refer to the college catalog for the college attendance policy.
2. No beverages or food are allowed in the classroom. The room is designated a non-smoking area.
3. Each student is expected to complete his/her own assignment. Plagiarism may result in a failing grade for all parties involved. Refer to the current college catalog or student handbook for the college policy regarding plagiarism.
4. Courteous behavior is expected at all times. Please treat others with the respect you desire for yourself. Disruptive or inappropriate behavior will not be tolerated. Refer to the student handbook for college policy regarding student (and faculty) conduct.
5. Bring your text and notebook to each class meeting (lecture and lab).
6. Deadlines and due dates are intended to make sure you progress through the material in a timely manner, and generally not subject to change.
7. You are allowed one 8-minute break for each hour in class. You don't have to ask permission to take a break *unless the instructor is lecturing, giving instructions, or you are taking an exam or quiz.*
8. Should you decide to withdraw from the course, **you** must fill out the necessary form and deliver it to the Admissions and Records Office. You may earn a failing grade on your transcript if you don't fill out the required paperwork.

TENTATIVE SCHEDULE OF TOPICS
(subject to change)

Biology 30 (Spr 1999)

<u>Week of</u>	<u>Lecture Topic</u>	<u>Text Reading</u>	<u>Lab Activity</u>
Jan. 18	Introduction/Science of Biotechnology	Ch. 3	Record Keeping
25	Safety, Biohazards, Good Lab Practices	Ch. 3 Handout	Safety Rules Aseptic Technique
Feb. 1	Using the Metric System	Handout	Metric Units Weights & Measures
8	Preparation of Solutions	Handout Ch. 2	Concentration pH & Buffers
15 Feb. 17	Preparation of Solutions First Midterm Exam	Handout	Spectrophotometer Sterilization Methods
22	Cell Structure and Function	Ch. 8, 9	Centrifugation DNA Extraction
Mar. 1	Cell Structure and Function	Ch. 10, 11	Cell Fractionation Cell Membranes
8	The Chemistry of Cells	Ch. 2	Carbohydrate/Lipid Protein Assays
15	The Chemistry of Cells	Ch. 2	Enzymes Nucleic Acids
22 Mar. 24	Fundamentals of Molecular Biology Second Midterm Exam	Ch. 3	Surfing the Bionet Potpourri
29	SPRING BREAK		
Apr. 5	The Flow of Genetic Information	Ch. 4	TBA
12	The Flow of Genetic Information	Ch. 5	TBA
19 Apr. 21	The Flow of Genetic Information Third Midterm Exam	Ch. 6, 7	TBA
26	Cell Regulation: Gene Regulation	Ch. 13	TBA
May 3	Cell Regulation: Gene Regulation	Ch. 14	TBA
10	Industrial/Agricultural Applications	Ch. 15	TBA
May 12	Last class meeting		Project Reports

May 17

Monday: Final Exam Day

BAKERSFIELD COLLEGE

Student Information Sheet

Please fill in the requested information in the space provided. The information provided by you is voluntary and confidential. You are not required to participate, but the data provided will help us serve your needs more effectively. Thank you for your cooperation.

1. Name

2. Reason for taking this course/occupational goal

3. Name of high school attended, dates attended, and degree earned:

4. High School Math courses taken and grades earned. Use the back of this sheet if more space is needed.

5. College Math courses taken and grades earned. If taken at another college, please indicate the college.

6. High School Science courses taken and grades earned.

7. College Science courses taken and grades earned. If taken at another college, please indicate the college.

8. Are you employed? If so, how many hours per week? What is the nature of the work?

9. Do you have family obligations that might conflict with class attendance?

10. What grade do you wish to earn in this course? What skills do you have that will help you achieve your goal?

STUDENT CONTRACT

I have read the course syllabus and understand my responsibilities in undertaking the study of general biology. I agree to abide by the procedures and policies outlined in this document and the college handbook and/or catalog.

Student signature

Date

Cut along the line and return to the instructor at the next class meeting.

INSTRUCTOR COPY OF THE STUDENT CONTRACT

I have read the course syllabus and understand my responsibilities in undertaking the study of general biology. I agree to abide by the procedures and policies outlined in this document and the college handbook and/or catalog.

Student signature

Date