Biology 370 Cell and Molecular Biology Lab
Chaminade University
Fall 2000
Fridays 2-4:50 PM
Dr. Joan Kuh (Room 16 at X807)

TEXT---There is no text for this lab but instead will follow handouts that I will try to make available to you at least one week in advance.

THE GOAL of this course is to give you experience in techniques that currently are widely used in cell and molecular biological research labs and/or to demonstrate biological principles from the lecture.

YOUR GRADE will be determined by the 2 exams (25% each) and five summaries from the laboratories marked with an asterisk (*--10% each for a total of 50%). These laboratory summaries are meant to provide you with experience in writing short scientific reports and are due by the beginning of the next laboratory meeting. The format for each typewritten report is 2-3 pages in length with a title, your name, a short abstract briefly presenting the purpose, methods and findings, followed by a more extended description of methods and then findings including any pertinent tables and/or graphs. In a final discussion section, briefly restate the experiment and discuss any problems that may have been encountered. Also in this section address questions that are given along with the lab. Any references you have used in completing the report must be cited.

I will adhere to the Biology Department's LATE PAPER POLICY which states that papers turned in up to 24 hours after the due date will be docked 10% of the grade. After that time, the paper will not be accepted for grading.

Attendance for the lab is required. Laboratory attendance for this course is key to understanding material in the lecture and learning techniques that are commonly used in molecular and cellular biology research labs. Additionally, missed labs cannot be made up.

A laboratory notebook is strongly advised in order to collect and keep data in a centralized location. A well organized notebook will facilitate the writing of the lab summaries. However, notebooks will not be graded in this course.

The TENTATIVE SCHEDULE is listed on the back of this paper.

Tentative Lab Schedule:

09/01 Lab 0 Introduction, Using Pipettors, Getting to Know the Spectrophotometer

09/08 Lab 1* Growth Kinetics

09/15 Lab 2* Enzyme Kinetics

09/22 Lab 3* Protein Analysis ---SDS-PAGE gels

09/29 Lab 4 Protein Analysis--Western Blot

10/06 Lab 5 Differential Gene Expression ---Aldehyde Oxidase In Drosophila

10/13 Lab 6* Nucleic Acid Analysis---DNA Extractions

10/20 MIDTERM Practical Exam

10/27 Lab 7 Nucleic Acid Analysis--Restriction Digests and Gel Electrophoresis

11/03 Lab 8* Nucleic Acid Analysis ----PCR, Sequencing & DNA Fingerprinting

11/10 Veteran's Day Holiday

11/17 Lab 9 Fluorescence Microscopy

11/23 Thanksgiving Break

12/01 Lab 10 Immunofluorescence

12/08 FINAL Practical Exam

* Indicates labs for which laboratory reports are to be completed.

Biology 370 Cell and Molecular Biology
Chaminade University
Fall 2000
MWF: 1-1:50 PM
Dr. **Joan Kuh (Room 16 at X807)**

Text: *Molecular* Cell Biology, 4th edition by Lodish et al.

Course Description. This course is a survey of the biochemical end molecular components of a cell and how they work together to create a specialized living entity that feeds, responds to stimuli, moves, divides and differentiates. At the completion of this course, students should be able to understand the basic biochemistry of the cell including energetics and structure/synthesis of key macromolecules, function and structure of organelles and how cell identity is established within a multicellular organism through differential transcription of the genome and cell communication.

Grades will be based on:

3 Midterms:	**25%** each	**75% total grade**
Cumulative Final:		**25% total grade**
(December 12th 10:30-12:30)		

A TENTATIVE schedule is listed on the reverse side and is subject to change.

TENTATIVE Schedule:

08/28	Introduction	Chap. 1
08/30	Small molecules	Chap. 2 (pp 1429)
09/01	Macromolecules	
09/06	Biochemical Energetics	Chap. 2 (pp 35-47)
09/08	Cellular Energetics	Chap. 16 (pp. 616-626)
09/11	Proteins	Chap. 3
09/13	Proteins	Chap. 3
09/15	Proteins	Chap. 3
09/18	Nudeic Acid Structure	Chap. 4 (pp 100-110)
09/20	DNA Replication	Chap. 4 (pp 111-113); Chap. 12 (pp. 453-467)
09/22	DNA Repair	Chap. 12 (pp 472-481)
09/25	MIDTERM EXAM 1	
09/27	Transcription of DNA	Chap. 4 (pp 111-113); Chap 10 (pp 346-358); Chap. 11 (pp 404-410)
09/29	RNA Processing	Chap. 10 (pp 358-365); Chap. 11 (pp 410-426; 436-443)
10/02	Translation	Chap. 4 (pp 116-134)
10/04	Translation	
10/06	Chromosome Structure	Chap. 9 (pp 294-303; 320-332)
10/11	Bacterial Transcription	Chap. 10 (pp 342-358)
10/13	Eukaryotic Transcription	Chap. 10 (pp 358-397)
10/16	Development	Chap. 23 (pp 1013-1021)
10/18	Development	Chap. 14 (pp 543-574)
10/20	Viruses	Chap. 6 (pp 191 204)
10123	MIDTERM EXAM2	
10/25	Recombinant DNA	Chap. 7
10/27	Recombinant DNA	Chap. 7
10/30	Genomics	Chap. 7
11/01	Membrane Structure	Chap. 3 (pp 78-83); Chap. 5 (pp 140-166)
11/03	Membrane Transport	Chap. 15 (pp 578-597)
11/06	Ion Channels	Chap. 21 (pp 911-927)
11/08	Oxidative Phosphorylation	Chap. 16 (pp 632-647)
11/13	Electron Transport	Chap. 16 (pp 632-647)
11/15	Photosynthesis	Chap. 16 (pp 648-671)
11/17	Organelles/Protein Sorting	Chap. 5 (pp 168-175); Chap 17
11/20	Secretory/Endocytic Pathways	Chap. 17
11/22	MIDTERM EXAM	
11/27	Receptors	Chap. 20 (pp 848-858); Chap. 21 (pp. 944-951)
11129	Signal Transduction	Chap. 20 (pp 862-877)
12/01	Cell Structure & Shape	Chap. 18; Chap. 19
12104	Cell Cyde	Chap. 13
12/06	Cell Cycle Control	Chap. 13
12108	Cancer	Chap. 24
12/12	FINAL 10:30-12:30 PM	