BIOCHEMISTRY LABORATORY (CH 360L, BI 360L) COURSE

Syllabus and Schedule

FALL SEMESTER 2004

Lab Time Schedule:

Laboratory Group 1:	M 2:00-4:50 pm	H44
Laboratory Group 2:	W 2:00-4:50 pm	H49

Instructor's name, address, phone and email.

G. David Lin Phone: 739 8543	Office: Henry Hall 6 e-Mail: dlin@chaminade.edu

Office Hours:

TR 9:30 – 12:00 am and/or by arrangement.

- Sometimes I will be in the lab 15 minutes before class and you can ask me questions.
- During the lab section, you can ask me any questions though priority will be given to the question related to the lab practice.

Course Description:

The Biochemistry Laboratory (CH 360L or BI 360L) is the concurrent course of Biochemistry (CH 360 or BI 360). It enables students to acquire basic techniques in the separation and analysis of biological molecules, as well as basic skills in the characterization of biological processes and activities. Real-world experience through the service learning program administered by Chaminade University is provide as an option for students who would like to work in research laboratories at the University of Hawaii at Manoa.

Course Objectives:

On the completion of CH 360L, the students will be expected to:

1. Connect the theoretical aspects of the structure and property of proteins, enzymes, lipids, carbohydrates and nucleic acids to their practical aspects of biological functions and activities in living systems and biological processes.
2. Select and use appropriate laboratory techniques and methods to separate and identify proteins, enzymes, fats, carbohydrates and nucleic acids, and to analyze and characterize the biological activities of biological molecules
3. Apply basic laboratory skills to answer some biochemical questions in life.

Lab Requirements:

Students must have a calculator and a composition-style notebook.

During the laboratory class the student **MUST** ware **safety glasses** and **covered shoes**. **Laboratory coat** is also highly recommended.

Due to safety regulations and requirements in occupation health & safety, students that not comply with these conditions **cannot participate** in the laboratory sessions.

Laboratory manual will be handed out for you in advance. It is highly recommended that you read through the manual to get a main idea about the laboratory work.

Although it is not recommended as a laboratory textbook for this course, students are highly commended to consult with the following book:

Rodney Boyer (2000). **Modern Experimental Biochemistry**, third edition. Addison Wesley Longman Inc., San Francisco.

Grading Scale:

Pre-lab preparation and work planning, experimental observation, calculation of data and interpretation of results are written up in the note-book. In some experiments, formal laboratory reports are also required.

There will be written lab tests that cover the theoretical aspects of techniques and experiments.

Service learning of working at UHM laboratories at least 10 hours is provided as an option. Students taking this option will not submit the two lab reports, but need to submit a reflection paper, weighed 25%.

The lab grade will be based on the following criteria:

Pre-lab preparation (as shown in the notebook)	25%
Note-book record (as shown in the notebook)	25%
Two Lab reports, or write a reflection paper	25%
Two lab tests	25%

No make-up labs will be given with the exception of extraordinary circumstances such as a verified medical excuse with written verification from an MD detailing student's inability to attend lab. Students with each unexcused absence will lose 5% marks in pre-lab preparation and 5% marks in Note-book record.

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Pre-lab preparation includes reading the handout, and take notes in your own words about aims of the experiment, brief theory, overview of the experiment, pre-cautions, obtaining relevant biochemical data and calculating, and planning your time and work.

CH 360L Biochemistry Laboratory Schedules

Monday Group, Section 01

Wk	Dates	***Experiment***	***Reading***
1	8/23	Safety rules and lab conduct, lab syllabus, lab notebooks and lab report, statistical analysis	Handout 1
2	8/30	Biochemical literature, Spectrophotometry	Handout 2
3	9/6	Labor Day Holiday	
4	9/13	Studies on proteins: purification by Sephadex column chromatography	Handout 3
5	9/20	Studies on proteins: size determination by SDS-PAGE (**Lab Report 1**)	As in Handout 3
6	9/27	Enzyme kinetics: measurement of catalase activity	Handout 4
7	10/4	Glycosis in yeast	Handout 5
8	10/11	Discoverer's Day Holiday	
9	10/18	**Lab Test 1**	
10	10/25	Lipid, extraction, separation, identification, thin layer chromatography	Handout 6
11	11/1	Pea seed DNA: isolation and agarose gel analysis	Handout 7
12	11/8	DNA finger printing for forensic science (**lab Report 2**)	Handout 8
13	11/15	Genetic engineering: transformation of E. coli.	Handout 9
14	11/22	Genetic engineering: continued	As in Handout 9
15	11/29	**Lab Test 2**	

CH 360L Tentative lab Schedules

Wednesday Group, Section 02

Wk	Dates	*Experiment*	*Reading*
1	8/25	Safety rules and lab conduct, lab syllabus, lab notebooks and lab report, statistical analysis	Handout 1
2	9/1	Biochemical literature, Spectrophotometry	Handout 2
3	9/8	Free study (to compensate Labor Day holiday)	
4	9/15	Studies on proteins: purification by Sephadex column chromatography	Handout 3
5	9/22	Studies on proteins: size determination by SDS-PAGE (**Lab Report 1**)	As in Handout 3
6	9/29	Enzyme kinetics: measurement of catalase activity	Handout 4
7	10/6	Glycosis in yeast	Handout 5
8	10/13	Free study (to compensate Discoverer's Day holiday)	
9	10/20	**Lab Test 1**	
10	10/27	Lipid, extraction, separation, identification, thin layer chromatography	Handout 6
11	11/3	Pea seed DNA: isolation and agarose gel analysis	Handout 7
12	11/10	DNA finger printing for forensic science (**Lab Report 2**)	Handout 8
13	11/17	Genetic engineering: transformation of E. coli.	Handout 9
14	11/24	Genetic engineering: continued	As in Handout 9
15	12/1	**Lab Test 2**	