

CHEMISTRY 433 BIOCHEMISTRY LABORATORY

Spring, 2009

W 1st – 4th hour

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TEXTBOOK: The textbook for the course is the *Chemistry 433 Biochemistry Laboratory Manual* (7th ed., Spring, 2009). You may find it useful to use Internet or literature resources for some experiments. Finally, your biochemical textbook useful for background clarification of points related to the experiments.

COURSE STRUCTURE: This course is intended to introduce you to some of the most widely used experimental procedures in biochemistry, including protein purification, enzyme assays and kinetics, and spectroscopy. Experiments will be done in groups of 2 or 3. You may choose a partner, or you can ask to be assigned to a group. Included in this handout is a schedule of experiments for the course. As work in the lab is a dynamic process, we may deviate from the schedule or alter some experiments. From time to time, you and/or your partners may need to perform or finish procedures outside of the scheduled lab time.

SAFETY: Laboratories contain hazards of various kinds. **Everyone is required to wear closed-toe shoes, long pants, and goggles or safety glasses while performing laboratory work.**

Some of the chemicals used are toxic, mutagenic, or teratogenic. If you believe that you have a health condition that puts you at exceptional risk, or believe yourself to be pregnant, please see your instructor in private to discuss the issue. If you have questions or concerns about exposure to chemicals, please consult your instructor.

LABORATORY NOTEBOOK: All students will be required to maintain a laboratory notebook. The notebook will be used for the recording of laboratory data and calculations, and will be critically important for writing your lab reports. Instructions on keeping notebooks can be found in the *Laboratory Manual*. In addition, your instructor will go over how to maintain a proper notebook.

COURSE GRADING: Your grade in this course is based on the following criteria: attendance and participation, and laboratory reports.

A. Attendance and Participation

Because this is a hands-on lab course, your grade will reflect your attendance and participation in the class. No points will be given for attendance; however, your maximum allowable grade will reflect your attendance and participation. Allowing your partners to do all of the work will result in a reduction in your maximum possible grade.

B. Laboratory Reports

1. The reports should be based on guidelines in the *Laboratory Manual* section on "Laboratory Reports". The report should be formatted as the **Results &**

Discussion section for a paper from the scientific literature. (You do not need to include an Introduction, or Methods section; you should, however, include references, and an appendix with the raw data you used to generate your results.)

2. The reports must be written using a word processor. Please be concise in your writing (grading will not be based on the weight of the report!).

3. The laboratory report due dates will be announced in class.

4. Lab reports will be graded largely for content, but grammar and spelling will also be assessed.

5. **Each student is responsible for every word written in her/his own laboratory report.** Although students will work in small groups on experiments and are encouraged to discuss the experiments and experimental results with each other, the actual laboratory reports must be written individually. **Copying from the work of others is plagiarism, a form of Academic Misconduct.** Assignments exhibiting plagiarism will be awarded a grade of zero, and will be reported to the department head and dean of students for further disciplinary action.

Approximate Schedule of Experiments

Week	Experimental Procedures
1	Introduction
2	LDH Purification, Part I
3	LDH Purification, Part II
4	LDH Activity Measurements
5	Protein assay, Gel Filtration Chromatography
	<i>Spring Break</i>
6	SDS PAGE, Native Gel Electrophoresis, and Gel Filtration Chromatography Lab report 1 due
7	Crystallography and Western blotting
8	Enzyme Kinetics
9	Fluorescence
10	Additional experiments (if necessary); Lab report 2 due

Note: each group will perform the experiments after 5th week in a different order so that each group will have a chance to use the appropriate equipment.