

Chem 162
General Biochemistry Laboratory
Spring 2015

Instructor: Dr. Katherine McReynolds

Office: SQU 534

Office Hours: M 10-10:50 AM,
W 1-1:50 PM

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Class Meets: SQU 452 M 1-1:50 PM
SQU 550 MW 2-4:50 PM

Course Description: Introduction to fundamental laboratory techniques for the purification and analysis of biological molecules, including chromatographic separation of amino acids and proteins, electrophoretic separation of proteins and nucleic acids, enzyme kinetics, and basic bioinformatics.

Required Textbooks:

- *Biochemistry Lab Manual*, CSUS Chemistry Department
- Chemistry lab notebook with carbon paper or carbonless duplicate pages
- *Biochemistry Laboratory Modern Theory and Techniques*, 2nd Edition, by Rodney Boyer

Required Materials:

- Flash drive for data transfer from lab computers
- OSHA-approved safety goggles (**not** safety glasses)
- Box of latex or nitrile gloves (available at the campus bookstore or any home improvement/craft store).

Course Prerequisites:

- Chem 31
- Chem 160a or Chem 161 (may be taken concurrently)
- English 20, or equivalent

Grading:

Notebook lab reports	300
Exercises	100
Formal lab reports (1 @ 125 pts. + 25 pt. drafts)	150
Prelab quizzes (8 @ 10 pts ea.)	80
Exams (2 @ 150 pts. ea.)	300
Notebook	25
Performance/Participation/Safety	<u>45</u>
	1000 pts. Total

Letter grades will be assigned based on the total points earned, using the following scale:

A:	930-1000	B+:	880-899	C+:	780-799	D:	600-699	F:	0-599
A-:	900-929	B:	820-879	C:	720-779				
		B-:	800-819	C-:	700-719				

Attendance: Attendance in discussion and laboratory are **mandatory**. If you must miss class for an acceptable reason (*ie* illness), a doctor's note or some other evidence of a valid excuse will be required. You are still responsible for completing the work missed. **Two unexcused absences (discussion/lab) for the semester will result in an F grade in the course.**

Discussion: This time each week will be used to prepare you for performing each experiment. It is expected that you will have completed the assigned reading prior to attending the discussion. Again, attendance in discussion is mandatory.

Safety: Your safety and the safety of others in the lab are of the utmost importance. Please be cognizant of what you are doing and what is going on around you at all times. You will sign a safety agreement the first day of class. Each infraction of the safety agreement will result in the loss of 5 points from your grade. This includes my having to remind you to put on your safety goggles (and no, wearing them on your forehead does not count as having them on!). If you are pregnant, or think you may be pregnant, please notify the instructor of your condition immediately!

Pre-lab quizzes: These short 10 point quizzes are intended to determine whether or not you are prepared to do the lab experiment. Preparedness for the experiment includes having done the pertinent readings in the textbook and lab manual, as well as having the necessary biochemical background knowledge. Your best 8 out of 10 quizzes will count towards your final grade. There will be NO make up quizzes given.

Exams: We will have two exams in this course, one in mid-semester and the second during the last week of classes. These exams will focus on the theory behind the techniques, as well as practical aspects of techniques learned during the course of the semester. For exam dates, please refer to the course schedule.

Notebook:

- You will keep a laboratory notebook throughout the semester. This is your record of what you did in the lab, and it should be maintained as though you were working as a professional in an industrial/academic lab. Units on numerical data and significant figures should be used, where appropriate.
- Coming to class without your notebook or lab manual will result in your dismissal from class until you have retrieved them. Five points will be deducted from your grade each time.
- Failure to have completed the pre-lab assignment will result in dismissal from the class until it is done. Five points will be deducted from your grade each time.
- Details concerning how to keep a laboratory notebook can be found in the lab manual p. 6, as well as in the Boyer text, pp. 6-9.

Lab Reports (ALL lab reports must be turned in for the semester in order to pass the class):

- There will be three types of lab reports prepared for Chem 162, formal, notebook, or worksheet. These reports will be graded for completeness, clarity, and quality of both the writing and the data. Proper lab report writing etiquette dictates that including units on all numerical values having them, as well as properly using significant figures is essential. I will be looking for these elements. Late reports will be docked a penalty of 10% per day, and will not be accepted once they have been handed back to the class.
- **Formal Reports:** There will be one formal lab report written in Chem 162 for Experiment 5 (Enzyme Kinetics). This report is to be written in the format of a primary research publication, as described in the lab manual, p. 10. Formal lab reports must be typed and double-spaced. Carbon duplicates of the lab notebook must be submitted with the final report. I will have deadlines for submission of drafts of each section throughout the semester to help keep you on target for writing your final paper, and to offer you some feedback before you are assigned a grade for the assignment. Failure to turn in a section on time will result in the loss of points on the final score for the paper (5% per infraction). You will be held to a high standard of writing for this class. Please be sure to spell check and proofread your writing before you submit any writing to me for evaluation. Formal lab reports will be due according to the dates given in the lab schedule.
- **Notebook Reports:** Notebook reports are required for all experiments, excluding Experiment 5. These reports consist of the duplicate copies containing all of the sections described in "The Laboratory Notebook." These will be due at the beginning of lab the week after the experiment has been completed (see lab schedule for dates).
- **Exercise Reports:** Worksheets will be given in lieu of a report for exercises #1, #2 and #3. These must be filled out completely and all questions answered. You are still expected to keep notes in your laboratory notebook for these exercises.

Cheating: Cheating in any form, including plagiarism will not be tolerated. Cheating involves having extraneous notes, in written form, or stored in a programmable calculator/smart phone, looking at someone else's exam paper, or alteration of a graded question(s) with submittal for a re-grade, etc. Plagiarism involves copying information or data out of a book, or off of someone else's homework or lab reports without giving credit to the author. **This includes using identical data and/or graphs from a lab partner. You are expected to generate your own calculations, tables, graphs, etc.** If a student is caught cheating, I will deal with them in the harshest manner possible, given the nature of the offense. At the bare minimum, the score for the assignment the student was caught cheating on will become a zero and will count towards their final grade. At the maximum, the student will be reported to the Office of Student Affairs, where they may face sanctions against them, such as probation, or expulsion from the University. It is up to my discretion as to which path I will take in dealing with an incidence of academic dishonesty.