

Chem 481 – Biochemistry I

Fall 2008

Instructor: Dr. Wendy Shuttleworth Office: MLH 130A phone:792-2633 Email: washuttleworth@lcsc.edu

Office hours: Mon 2-3pm; Tues 10:30-11:30am, Thurs 10:30-11:00am.

Lecture: M/W 7:30-8:45 Reid Centennial Hall 202

Lab: M 9-12 MLH 210

Text: Biochemistry 6th Edition Berg, Tymoczko & Stryer

General Course Information

1. Attendance is expected in lecture; if you miss a lecture you are responsible for getting notes from another student. Participation will be a factor in assigning grades in borderline cases.
2. There will be no make-up exams except in the case of illness with a doctor's note, if make-up exams are necessary they may be an entirely different format from the regular exam. If you will miss an exam due to a trip out of town for a university sanctioned event or a job/professional school interview please talk to me about this as soon as possible so we can make arrangements.
3. Late homework and assignments will not be accepted, if you can not make class then the homework is due in my office before class begins.
4. The last date to withdraw from the class without a "W" on your transcript is Sept 8; the last date to withdraw from the course is Oct 31. After that date withdrawal is permitted by petition only and requires the approval of the division chair and documentation of extraordinary circumstances.
5. I will use Blackboard and LCMail for contact with the class, please be sure to check regularly for important updates. You are responsible for ensuring that you read your messages in a timely fashion. What is timely? I would recommend at least once per school day.
6. Disruptive behavior in class or lab will not be tolerated; this includes the use of cell phones during class periods.
7. Academic integrity: cheating in any form will not be tolerated. Plagiarism is the most common form of cheating in upper division classes; please be sure to use your own words in all written material. Cases of cheating will be reported to advisors and dealt with according to college policy.

Disability Statement

If you need course adaptations or accommodations due to a disability; if you have emergency medical information or need special assistance to evacuate from the building please make an appointment to see me as soon as possible. Accommodation assistance can be found at the office of Student life, Room 11, Reid Centennial Hall.

Course Objectives:

To provide a survey of biochemical topics including the theory behind modern biochemical laboratory methodologies.

To encourage critical thinking and the application of knowledge to novel situations.

Student Learning Outcomes:

After successful completion of this course the student should have a basic working knowledge of key aspects of biochemistry including protein biochemistry and the central processes of metabolism.

Course Structure:

The course will be taught primarily in a lecture format with time for discussions and questions. Class notes will be provided on Blackboard prior to class however these notes are incomplete and are

designed to be supplemented with information given in class. If you miss class or fail to take notes you may miss valuable information that would help with tests. The emphasis of the class will be on understanding key biochemical concepts and achieving a level of learning that allows for the application of these concepts to novel situations. Biochemistry is a tough subject for many students as it requires integration of material from earlier chemistry and biology classes however it is a fascinating subject and often where students “see the light” as everything falls into place and “finally makes sense”. A biochemistry class is recommended for success in entrance exams such as the MCAT and required for entry into many graduate programs including Medical & Dental School, Vet School and Pharmacy School. The class is not easy and will require a major time commitment on your behalf to ensure success for a 400 level class you should expect to study for at least 3 hours per hour in class. I am here to help you achieve your goals in this class so if you have any concerns and questions please come and talk to me sooner rather than later.

Exams & Quizzes: There are three exams including the final. The final will be comprehensive; no more than 25% of the material will be from earlier in the semester. There will be a quiz during the lab period most weeks; this may be given at the beginning, during or at the end of the lab period depending upon the experiment scheduled that week. No make up quizzes will be provided but the lowest two quiz scores will be dropped. Exams and quizzes may be multiple choice, short answer or essay type questions.

Homework: I will assign homework problems at intervals during the semester. They are due in class as indicated on the schedule.

Paper: This will be a short paper covering an area of protein biochemistry that is of interest to you and has not been covered in detail in the lecture series, more details will be given later in the semester.

Laboratory: The lab schedule will be distributed separately. A laboratory notebook will be maintained throughout the semester. This book is expected to be up to date at all times and may be collected at any time for evaluation. The format will be discussed during lab time. Bioinformatics projects are considered part of the laboratory notebook for grading purposes.

<u>Grades:</u>			points
Exams	(3)		350
Quizzes	(12)	10	100
Homework	(8)	10	80
Paper		50	50
Lab component			200
		Total	780

Final grades will be determined by the standard 90-80-70-60 scale, use of the optional (+/-) system will be at my discretion.

CHEM 481 Tentative schedule - any changes will be announced in class or on Blackboard.

Date	Topic	Book Chapter	Homework/ Assignments
25-Aug	Introduction to Biochemistry		
27-Aug	Aqueous Systems	1	Hwk 1
1-Sep	Labor day Holiday		
3-Sep	Buffers	1	Hwk 1 due
8-Sep	Amino acids	2	
10-Sep	Peptides	2	Hwk 2
15-Sep	Secondary Structure of Proteins	2	
17-Sep	Protein structure I	2	Hwk 2 due
22-Sep	Protein structure II	2/3	Hwk 3
24-Sep	Myoglobin and Hemoglobin I	7	
29-Sep	Myoglobin and Hemoglobin II	7	Hwk 3 due
1-Oct	Exam I (100 points)		
6-Oct	Introduction to Enzymes	8	
8-Oct	Enzyme Mechanisms	12	Hwk 4
13-Oct	Enzyme Kinetics I	8	
15-Oct	Enzyme Kinetics II	8	Hwk 4 due
20-Oct	Introduction to Metabolism	15	Hwk 5 Paper outline due
22-Oct	Carbohydrates I	11	
27-Oct	Carbohydrates II	11	Hwk 5 due
29-Oct	Glycolysis	16	Hwk 6
3-Nov	Gluconeogenesis	16	
5-Nov	Glycogen Metabolism	21	Hwk 6 due
10-Nov	Exam 2 (100 points)		
12-Nov	Citric Acid Cycle I	17	
17-Nov	Citric acid Cycle II	17	Hwk 7
19-Nov	Electron Transport	18	
11/24-11/28	Thanksgiving break		
1-Dec	Oxidative Phosphorylation	18	Hwk 7 due
3-Dec	Lipid metabolism I	12/22	Hwk 8 Final paper due
8-Dec	Lipid metabolism II	22	
10-Dec	Integration of Metabolism	27	Hwk 8 due
15-Dec	Final Exam (150 points)		