

# Chem160 – Introductory Biochemistry

## Fall 2014

- Instructor: Norman Zhu  
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Phone: 619-594-1597 or 858-534-0199  
Office: GMCS 213B
- Lectures: 10am-10:50am, Mondays, Wednesdays & Fridays, GMCS-301  
Attendance at all lectures is strongly recommended
- Office hours: Mondays 11:00-12:00pm CSL/ 508  
Wednesdays 11:00-12:00pm CSL/ 508
- Textbook: Pratt & Cornely, *Essential Biochemistry* (3rd ed.) with WileyPLUS,  
Wiley (2013)

### **The course:**

Prerequisites: One semester of general chemistry (chem100) and one semester of organic chemistry (Chem 130 or equivalent)

Course objective: Biochemistry is an attempt to describe the complex traits of biological systems in terms of the molecules that make up living things. It is an active area of experimental science. As such, its theories are constantly being reworked and refined as new biological systems are discovered and characterized. The goal of this course is to introduce to students of chemistry the basic concepts required for general health professions and medical fields. The topics include: Chemical composition and properties of biomolecules: carbohydrates, lipids, and proteins, the contents of foods as well as cells of all organisms, principle of enzyme and receptor chemistry, membrane transport, cell signaling, general metabolic concepts, bioenergetics, and more specifically, glycolysis. Furthermore, students with interests in biotechnology, life sciences, and molecular medicine will gain a working vocabulary and understanding of the molecules that drive these fields.

Course content: This is an introductory biochemistry class aimed at students interested in nutritional sciences and related fields. The major topics of the course are as follows:

- 1) Chemical composition and properties of biomolecules: carbohydrates, lipids, and proteins, the contents of foods as well as cells of all organisms.
- 2) Basic principles of enzymes, which catalyze biochemical reactions.
- 3) Introductory understanding of membrane transport, cell signaling.
- 4) Bird's eye-view of metabolism and bioenergetics
- 5) The metabolic pathways of glycolysis.

Homework: Homework will be done online in WileyPLUS. After the due date, late assignments will only worth half of its value

### How to study for this course:

**Note: While attending lectures is highly recommended and crucial for your academic success, it is not meant to be your sole source of learning. Majority of that has to happen outside of the classroom. Biochemistry is not an easy subject and it requires significant amount of time for anyone to absorb. On average expect to spend 15 hours a week for this class.**

Before each lecture:

Read all the chapter material assigned in class or indicated on the schedule. Print out the lecture slides from the posted powerpoint so you can bring it to the lecture.

During the lecture:

Follow along the lecture with undivided attention. This will pay off since I have a habit of calling on random people to answer questions. There are always practice questions at the end of a new concept, try to do these problems on your own and compare your answer with the one given. Jot down any notes on the print out as needed. Some of my students from previous semester have also brought in recording devices which I don't mind at all. Also asking questions during the class periods is highly encouraged because it benefits the whole class.

After the lecture:

Since I have scheduled my office hours right after class on Mondays and Wednesdays, that would be great time to approach if you have any questions about the lecture. Another way to clear up any confusion is by going to the text book.

Homework:

Prior to attempt the HW questions on Wileyplus make sure you know the material. The questions are setup in such way if you don't get it right on the first try the most you can get after that is 70% of the full score. This is done to encourage looking up the answer rather than just relying on guessing. All home works are due on the day of the midterm the material are covered in. No late submission. Come to the office hours for any difficult questions you can't answer. Don't wait till the last minute.

How to study for the exams:

For each midterm I will post an outline for the material you are responsible for on the blackboard. That doesn't mean that is what is on the test but could be. If have completed everything that are mentioned above then you should have automatically covered everything. In addition to that there are recommended questions from the back of each chapter posted on blackboard. Even though they are not scored but are selected because of their relevance to the material that will be on the test. However, if you find yourself in a desperate situation, I would rank the study priorities as followed: 1. Lecture material, especially the practice questions. 2. Sample calculation questions in the text. 3. Wiley homework questions. 4. Supplemental questions from the back of each chapter. If possible, study in a group.

Exams and grades:

There is a homework assignment for each of the chapter covered in this course, which come out to be 12 assignments, 4 midterms (one with the lowest score is dropped), and 1 final exam. **No makeup exams will be given.**

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|--|---------------------|
| Homework assignments (not curved)          | <b>100pts</b> total |
| 3 regular exams @ 100 points each (curved) | <b>300pts</b> total |
| Final exam, 150 points (curved)            | <b>150pts</b>       |

**Total: 550 points**

The exams will be multiple choices.

**Grading Scale(tentative):**

|    |   |  |  |    |   |
|----|---|--|--|----|---|
| 90 | A |  |  | 70 | C |
| 86 | A |  |  | 66 | C |
| 83 | B |  |  | 63 | D |
| 80 | B |  |  | 60 | D |
| 76 | B |  |  | 56 | D |
| 73 | C |  |  | <5 | F |