

CHEM520X: Essentials of Biochemistry (Spring 2017)

Instructor:

Dr. Jason C. Hurlbert

Office: Sims 301B

Office hours: MWF 1:00 – 2:00 and by appointment

Phone: 323-4928

E-mail: hurlbertj@winthrop.edu

Course Meeting Times: TR: 5:00 – 6:15PM

Location: Sims 112

Textbook: Biochemistry, 8th edition by Berg, Tymoczko, Gatto and Stryer (required)
*Since many of you will be taking the MCAT, PCAT or DAT this summer, **purchase AND read** the textbook. You will need the book to help you study for those exams once the semester is complete.*

Course Goals and Objectives

Biochemistry is the branch of science focused on studying the structure, function and interactions of the molecules found in living systems. Its very name tells you that it is a hybrid discipline incorporating biology, organic chemistry, physical chemistry and even physics into the study of the chemical reactions and interactions that allow life to exist. The goal of this course is to familiarize you with the vocabulary and concepts necessary to understand how living cells function at the molecular level. We will spend one third of the semester learning the basics of biological molecules: amino acids, proteins, sugars, polysaccharides and nucleic acids. In the second third of the semester, we will learn about the rules governing enzymatic function. Finally, in the last part of the semester, we will look at the key reactions and processes that allow cells to convert the static information contained within the genome into functional proteins that allow the cell to adapt to its environment.

This class is meant to push you to your limits and will help you tie together concepts and information you have learned in general chemistry, organic chemistry and various biology courses you have taken during your college career. Every bit of effort you put into this class will be rewarded with a better understanding of the role of chemistry in biological systems and will be reflected in the grade you earn for the course. Most importantly, this course will not rely on your ability to memorize information, but will require you to memorize information and apply it to new situations. Go ahead and plan to work on the material for this class at least 10-15 hours a week.

Student Learning Outcomes

Upon the completion of this course, students will:

- 1) Understand the concepts and vocabulary of modern biochemistry.
- 2) Understand the related nature of chemistry and biology.
- 3) Better understand how general chemistry, organic chemistry and physical chemistry are related to biological processes.

These learning outcomes mesh well with the four University Level Competencies (ULCs) that describe the skills Winthrop faculty have outlined for students to develop during their tenure here. These include:

Competency 1: Winthrop graduates think critically and solve problems.

You will be regularly tested on your abilities to read, interpret and apply information that ties together biology, general, organic and physical chemistries as they apply to life's processes.

Competency 2: Winthrop graduates are personally and socially responsible.

You will be expected to work with others in the class, while striving to complete assignments individually and with your own personal interpretations.

Competency 3: Winthrop graduates understand the interconnected nature of the world and the time in which they live.

Biochemistry is an interdisciplinary science and during this course you will realize the interdependence of biology, physics and chemistry. You will gain an appreciation of how each field can be interpreted in terms from the others.

Grading for the Course

Homework Problems

Because we cover so much material during the semester, you will have homework assignments due on the review day before each exam. These assignments are due at the start of each class session. If you show up late to class, **DO NOT COME TO THE FRONT OF THE ROOM AND TURN IN YOUR ASSIGNMENT!** Wait until class is over and turn it in.

Tests

Four tests will be administered during the semester. Understanding concepts from the beginning of the semester will be crucial to understanding concepts discussed at the end of the semester, so while the tests are not strictly cumulative, students are always responsible for material learned throughout the semester. Each exam will be worth 100 points. Exams will be taken during the class meeting time indicated on the Detailed Class Schedule webpage.

Final Exam

A cumulative final exam will be given at 11:30 AM on Tuesday, May 6 in Sims 113C.

Extra Credit Opportunities

Throughout the semester you will be given several opportunities to earn extra credit points. These opportunities will be challenging and are meant to be difficult. Failure to complete the assignment exactly as instructed will result in no points being awarded.

Extra credit assignments are always non-negotiable: You do the assignment completely, you do the assignment well and you do the assignment in the manner it was intended to be done or you do not get any bonus points.

Final Grade

Homework Assignments: 4 x 50 points = 200 points

Tests: 4 x 100 points = 400 points

Final Exam: 200 points

Total Number of Points for Course: 800 points

Grading Scale:

A: >93% of the total points

A-: 90.0 - 92.9% of the total points

B+: 87 - 89.9% of the total points

B: 83 - 86% of the total points

B-: 80 - 82.9% of the total points

C+: 77 - 79.9% of the total points

C: 70 - 76.9% of the total points

D: 60 - 69.9% of the total points

F: <60% of the total Points

Students taking the course for graduate credit

Any student taking the course for graduate credit will be required to prepare a final paper (10 pages) on a biochemical topic of their choosing for the protein assignment. Specific details will be worked out with the instructor.

Technology in the Classroom

No cellular phones may be used when class is meeting. Once class starts, all cellular telephones must be turned to silent mode for the duration of class. Should your cellular telephone ring while the class is meeting, you will be asked only once to silence it. A second violation of this policy will result in immediate removal from that class session. Anyone caught using these devices during class without prior permission will immediately be asked to leave the class. Anyone caught texting, using Facebook or other forms of social media during class will be immediately ejected from class. This policy is non-negotiable and will be enforced without exception. ANY and ALL violations of these rules will result in forfeiture of all earned bonus points and violators will also be ineligible for future extra credit opportunities.

Drop Policy: As described in the Winthrop University Undergraduate catalog

Student Code of Conduct

As noted in the Student Conduct Code: “Responsibility for good conduct rests with students as adult individuals.” The policy on student academic misconduct is outlined in the “Student Conduct Code Academic Misconduct Policy” in the online *Student Handbook* (<http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf>).

Students with Disabilities

Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact the Office of Disability Services (ODS) at 323-3290. Once you have your official notice of accommodations from the Office of Disability Services, please inform me as early as possible in the semester.