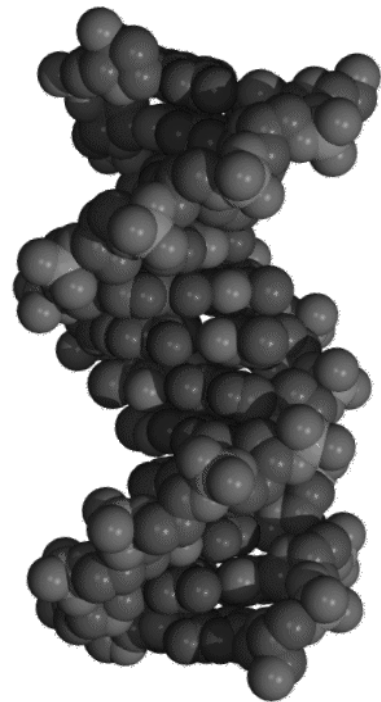
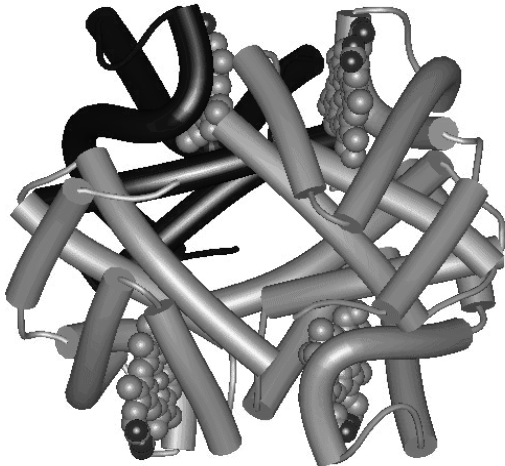


General Biochemistry I (CH 461) Lecture Syllabus

Fall 2009



Instructor:

Frank R. Gorga, Ph.D.
Room 314A
508-531-2827
fgorga@bridgew.edu

Copies of this document are available on my
website: webhost.bridgew.edu/fgorga

Introduction

Biochemistry I (CH 461) deals mainly with the structure, function and synthesis of biological macromolecules (nucleic acids and proteins).

The course begins with a brief overview of the relationship between biological macromolecules and genetics. We will then cover the structure of biological macromolecules (proteins and nucleic acids) in some detail. Next we will cover enzymology, including enzyme kinetics and catalytic mechanisms. This will be followed by a discussion of the mechanisms by which biological macromolecules are synthesized, including DNA replication, transcription (RNA synthesis) and translation (protein synthesis). We will end the semester with a “cap stone” discussion of biotechnology.

The laboratory associated with this course is a required and integral component. Experiments performed in the lab are designed to help students solidify their understanding of lecture material by providing hands on experience with selected areas of the material covered in lecture. The laboratory is described more thoroughly in a separate syllabus.

Course Materials

The required books for this course are:

Fundamentals of Biochemistry, 3rd edition, by D. Voet, J. Voet & C.W. Pratt.

This is a traditional text. It is to be used as a reference to clear up any confusion caused by my lack of clarity in lecture (a, hopefully rare, occurrence!) or your lack of clarity in note taking (also hopefully, a rare occurrence!!) My lectures will roughly follow the book although I will rearrange the order of the chapters somewhat.

Foundations of Biochemistry, 1st ed. (ISBN: 978-1-60263-524-1) by J. Loertscher & V. Minderhout, Publisher: Pacific Crest

In addition to these books the instructor may, on occasion, require students to photocopy other materials for use in the course.

The instructor will make use of various computer-based multimedia materials during the semester. Many of these materials are available for students to examine on their own computers. Just ask!

Evaluation of Student Performance (grading) and Academic Policies

Assessment of student learning in this course will be very nontraditional!

Student performance in the lecture will be assessed using “problem sets” (counting for 70% of the lecture grade), class participation (counting for 15% of the lecture grade) and a term-long “protein modeling” project (counting for 15% of the lecture grade). Each component will be assigned a letter grade. The letter grades will be averaged (using the standard GPA system) to arrive at the final grade for the lecture portion of the course; this system will be used similarly throughout the semester.

Problem sets will be handed out approximately every other Thursday and are generally due back the following Tuesday. See the attached schedule for the exact dates. These problem sets will take a somewhat variable form... some will be a set of "essay questions" similar to what may appear on a traditional exam, others will be a case study from the auxiliary text, still others will involve reading and summarizing a scientific paper. Each problem set will be assigned a letter.

Class participation includes, but is not limited to, actively participating in discussions, productive participation in group work and attendance (one cannot actively participate in class without being there!).

The "protein modeling" project is a semester long project that will culminate in the preparation of a physical model of a protein and in an oral presentation by each project group. The details of this activity will be laid out in class at the appropriate time.

Grading of the laboratory component of the course will be based on the lab notebook (one-third of the lab grade) and on lab reports for selected experiments (two total during the semester each one-third of the lab grade). Lab notebooks will be collected at random and unannounced intervals for assessment (see the lab syllabus for information on what is expected in the lab notebook.)

A student's final grade for this course will be derived from their performance in both the lab (one-third) and the lecture (two-thirds). Students must obtain a passing grade in both the lab and the lecture in order to pass the course (in other words, a student earning a grade of "F" in either the lab or the lecture will receive an "F" for the entire course.)

Problem Sets (due at the beginning of class on the date indicated)

Assignment #	Date Assigned	Date Due
1	17 Sept. (Thurs.)	24 Sept. (Thurs.)
2	1 Oct. (Thurs.)	8 Oct. (Thurs.)
3	15 Oct. (Thurs.)	22 Oct. (Thurs.)
4	29 Oct. (Thurs.)	5 Nov. (Thurs.)
5	12 Nov. (Thurs.)	19 Nov. (Thurs.)
6	24 Nov (Tues.)	3 Dec. (Thurs.)
7	10 Dec. (Thurs.)	17 Dec. (Thurs.)*

* Assignment due at noon

“Protein Modeling” Project

Deadlines throughout the semester will be announced as needed.

Laboratory Reports

Introduction to Lab

Due at the beginning of your regularly scheduled lab period during the week of 17 September

Electrophoresis / Western Blotting

Due at the beginning of your regularly scheduled lab period during the week of 20 October

Purification of Proteins

Due at the beginning of your regularly scheduled lab period during the week of 1 December

Enzyme Kinetics

Due by Noon on 15 December (Tuesday lab) or 17 December (Thursday lab)