

CHEM 660: Protein Biochemistry

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Reading: Lecture notes will be made available for download via by web page.

Suggested Reading: **How Proteins Work** by Mike Williamson

A good Biochemistry Textbook (such as Lehninger, Berg, or Voet and Voet)

To better comprehend life processes it is important to understand proteins and the factors that define their properties and function. They are the most abundant macromolecules in living systems, and they serve in diverse and essential capacities: structure, signaling, toxins and catalysis just to list a few. Despite this diversity of function and capability, proteins are assembled using a relatively small and simple library of monomeric building blocks, amino acids. This class aims to present a focused examination of proteins, their biophysical and biochemical properties, proteomics and the current status of protein biochemistry.

Goals of this course: Introduce students to...

- 1.) The biochemical and biophysical properties of proteins and their role in defining the biological function of proteins.
- 2.) Techniques and methods used to characterize proteins.
- 3.) Protein biosynthesis, regulation and degradation.
- 4.) Proteomics and the complex relationships between various proteins.

Most of the material will be presented in lectures and covered in the lecture notes, and lectures will often incorporate relevant information from multiple sources and recent literature. It is suggested that students refer to a good general biochemistry text to help with some of the lecture material.

At the end of the semester (weeks 15-16), each student will present a 20 minute lecture on a topic from the literature that is relevant to protein biochemistry. A list of suggested topics will be provided. This will not be a complete list, merely offering some ideas. Students are expected to turn in topic requests by Week 6.

Throughout the semester, papers drawn from the current literature will be assigned to be read. Students are expected to have read these papers before coming to class and be able to discuss them on the assigned dates. Students will be evaluated based on their preparedness and participation in these discussions.

Grading and Examination Policy

Two in-class tests (02/29 & 04/18) and a final exam (05/09) will make up 20% of the final grade. Additionally, a writing assignment will contribute 10% and the class presentation contributing the another 20%. The remaining 10% will be based on participation in in class discussion. Students are responsible for material covered in the lectures and the assigned reading. A grade of 0 (zero) will be assigned for missed exams.

Note:

Students are expected to act in accordance with the University Honor Code (<http://www.gmu.edu/departments/unilife/honorcode.html>).

Cell phones and beepers are not allowed in this class.