

MAJOR IN BIOCHEMISTRY, PRE-PHARMACY CONCENTRATION

This concentration augments the ASBMB Concentration with additional coursework in physiology, microbiology, immunology, economics and public speaking. This concentration fulfills the prerequisite courses for admission to most pharmacy schools. It is also an appropriate concentration for a career as a medical technician.

Learning Objectives

Upon successful completion of this program, students will be able to:

1. Explain how DNA is packaged, replicated, repaired, transcribed, and translated in both eukaryotes and prokaryotes.
2. Compare and contrast the regulatory mechanisms of transcription and translation in eukaryotes and prokaryotes.
3. Describe and discuss the molecular architecture of nucleic acids and proteins along with the non-covalent interactions responsible for stabilizing the structure of these macromolecules.
4. Outline the salient features of the central pathways of glycolysis, gluconeogenesis, citric acid cycle, pentose phosphate pathway, fatty acid metabolism, ketogenesis, urea cycle, amino acid and nucleotide metabolism and explain the principles of electron transport, ATP synthesis, and their regulation.
5. Develop an in-depth understanding of cellular functions and their regulation mechanism.
6. Perform a wide-array of biochemical techniques and discuss how these tools are currently being used in biochemical research.
7. Develop the writing, oral, and critical thinking skills necessary to communicate biochemical concepts to other scientist in written and oral form.
8. Identify the major and minor anatomical features within human beings and explain/define their physiological roles.
9. Identify the structural, functional, developmental, and molecular biology aspects of a wide-range of microorganisms emphasizing bacteria.