CHM 225: Biochemistry

This course covers the chemistry of biologically important molecules: amino acids, proteins, carbohydrates, lipids, and nucleic acids. Bioenergetics, biosynthesis, genes, chromosomes, and DNA metabolism round out the course. The lab introduces analytical and synthesis techniques for the biologically significant compounds. Prerequisites: BIO 121; and CHM 114 or CHM 116. Three lecture hours and three laboratory hours per week. Instructional Support Fee applies. Gen. Ed. Competencies Met: Scientific Reasoning and Discovery.

Course Student Learning Outcomes

By the end of this course, you should be able to: 1. Explain the physical and chemical properties of water and describe why water serves as the solvent for most biochemical reactions. 2. Solve problems involving buffers and apply acid-base concepts to formulate buffer systems used in biochemical reactions. 3. Distinguish the main chemical and biological differences between carbohydrates, lipids, proteins, and nucleic acids. 4. Recognize the various functional groups found in amino acids and predict how they determine the secondary and tertiary structure of proteins. 5. Describe the structure and mechanism of representative enzymes in biochemical pathways and interpret plots of enzyme kinetic data. 6. Describe the primary catabolic pathways of carbohydrates and distinguish the key regulatory reactions, the energetics of the reactions, and the key chemical transformations involved in carbohydrate catabolism.
Credits: 4
Program: Chemistry