



CHE 550

Biological Chemistry I

'Chemistry at its Best'

Biological chemistry is endlessly fascinating, encompassing some of the most difficult reactions known to man, and executing them with exquisite precision, control and subtlety. The mechanisms which biology has evolved to make difficult reactions possible, and to control otherwise explosive chemistry, reveal ingenious ways of manipulating the reactions, and provide insight into fundamental aspects of the reactions themselves. Prepare to read a lot, to think hard about what you read, to assemble information from diverse sources, and be amazed.

At a practical level, this is the comprehensive biological chemistry course that seeks to provide an entry into biological chemistry, for students with background in chemistry broadly-speaking. It is taught at the level of a first year graduate course and assumes that students will have prior exposure to basic concepts of chemistry and / or be able to fill in modest gaps in their preparation themselves. While the course begins with a very quick review of such material, the emphasis will be on developing a rational understanding of ways in which biological chemistry works. We will, of necessity, study a couple of categories of biomolecules, and one or two pathways in detail. However, we will do so with the goal of identifying themes and principles that will make biomolecules and pathways in general comprehensible and interesting. Topics emphasized will be proteins, nucleic acids, enzymatic catalysis, biomolecular structure, energy/entropy, glycolysis, the Krebs cycle and associated regulation and energy transduction.

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