BIOCHEMISTRY OF BIOMOLECULES

OUTLINE

1. Modern Biochemistry in the age of functional genomics
2. Data on Biochemical evolution. The evolutionary course of simple molecules in complex biomolecules
3. The biomolecules of living organisms and their structural units
4. Amino acids and proteins
5. Structure and function of proteins
6. Enzymes: Basic and kinetics principles
7. Coenzymes and prosthetic groups
8. Mechanisms and regulation of enzymatic catalysis
9. Nucleotides and nucleic acids: Structure and function
10. Carbohydrates: Structure and biological roles
11. Lipids and cell membranes

LABORATORY: Amino acids and protein stereotypes. Molecular identification of nuclear acids. Membrane proteins. Hemoglobin. Proteolytic enzymes - Molecular action. Substrate design. The molecular action of insecticides.

LEARNING OBJECTIVES

On completion of the course the student will:

- Has a comprehensive knowledge of the basic biomolecules that assemble living organisms
- Can promote social knowledge regarding modern technological applications of biomolecules.
- Know the biological roles and relationship structure and function of biomolecules.
- Will gain a basic background for a better understanding of the most specialized biological and biotechnology courses.
- Can distinguish the basic and special roles of the different categories of biomolecules in terms of their application, in order to produce specific biotechnological products or services.
- Can work with his fellow students to study specialized categories of biomolecules, while at the same time he will be trained in online access to libraries and scientific journals.
- To be able to collaborate with his/her fellow students to create written work and oral presentation on the applications of biomolecular biochemistry, as well as the ability for online access and retrieval of information from electronic libraries and scientific journals.