



University of Cyprus
Department of Biological
Sciences

Courses offered in English Language Fall Semester 18-19

BIO 221 Biochemistry I (6 ECTS)

The course is designed to provide an understanding of the physical, structural and functional properties of the chemical components of living matter. The course will cover the three major classes of biological molecules: proteins, carbohydrates and lipids. Emphasis will be on the chemical properties and three-dimensional structure of these molecules in relationship to their biological function, as well as laboratory techniques for their isolation and characterization. Topics include: Protein structure and function, Hemoglobin-Structure, function and genetic disorders, Sugars and Polysaccharides, Lipids and biological membranes. Principles of thermodynamics, the mechanisms of enzyme action, enzyme kinetics, and the control mechanisms which regulate enzymatic reactions will be discussed. Principles governing metabolism, including bioenergetics, compartmentalization, the operation and control of pathways, the major metabolic pathways of carbohydrate metabolism, oxidative metabolism and lipid metabolism (i.e., triglycerides, phospholipids and sterols). This course is taught in English and is available to ERASMUS students.

Associate Professor Niovi Sanatama santama@ucy.ac.cy

BIO 230 Introduction to Computational Biology (6 ECTS)

This course will demonstrate, through Lectures and Laboratory work, how Computational tools have revolutionized modern biological research with an emphasis on nucleic acid and protein sequence and structural analysis, also including an introduction to the analysis of complex biological systems. Lectures cover principles and methods used for sequence alignment, motif finding, structural modeling, structure prediction and network modeling. Laboratory practicals include examples on power usage of state-of-the-art methods/tools related to the topics covered in the lectures, and student mini-research projects based on programming and analysis of real-world datasets. This course is taught in English and is available to ERASMUS students. BIO 241 Laboratory Methods and Techniques I (6 ECTS) This course focuses on various experimental techniques widely used in biochemistry. It also includes extensive practice in scientific style writing. It emphasizes integration of factual knowledge with understanding the design of experiments and data analysis, so as to promote acquisition of reasoning skills. Students first learn how to perform simple calculations (dilutions, concentrations, pKa values, extinction coefficients and absorbance using Beer's Law) and how to use basic laboratory equipment (pipettes, scale, pH meter, centrifuge, spectrophotometer). They are then introduced to spectroscopic methods for determination of enzyme kinetics and to various techniques for protein extraction, quantification and characterization including SDS-PAGE, Western Blot, Dot Blot, ELISA, and immunofluorescence.

Assistant Professor Vasilis Promponas vprobon@ucy.ac.cy

BIO 471 Immunology (6 ECTS)

Introduction to immunology, with attention to the genetics, molecular, and cell biology of antibody production; T-cell mediated immune responses and innate immunity. Topics include the nature of antigens, hypersensitivities, transplantation, cytokines, autoimmunity, cancer, response to infection, and vaccines

Assistant Professor Yiorgos Apidianakis apidiana@ucy.ac.cy

For more information please follow the links below:

<http://www.ucy.ac.cy/biol/en/>

<http://www.ucy.ac.cy/biol/en/academicprogramms/courses-overview>

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