COURSE DETAIL

BIOCHEMISTRY
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Biochemistry
UCEAP Course Number 153
UCEAP Course Suffix
UCEAP Official Title BIOCHEMISTRY
UCEAP Transcript Title BIOCHEMISTRY
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This is a graduate level course that is part of the Laurea Magistrale program. The course is intended for advanced students only. Enrolment is based on consent of the instructor. Students who write a term paper on a pre-approved topic receive one extra unit. Maximum units for the course is 6. The course focuses on the main biological processes at a molecular level: structures, properties and functions of biomolecules, molecular mechanism, route and law of bio-transformations, the base of microbiological physiology and genetics, enzymatic catalysis, and fermentation. The course pays special attention to the application of knowledge and acquired skills in the biochemical interaction among organisms and the environment. The course has 2 parts. Part 1: Biochemistry: 1) macromolecules, amino acids, carbohydrates, lipids; 2) protein structure, primary, secondary, tertiary, quaternary; 3) plant biochemistry, photosynthesis, light reactions, carbon fixation, synthesis of lipids, nitrogen metabolism; 4) enzyme catalysis, enzyme classification, substrate specificity, catalytic mechanisms, enzyme kinetics, competitive and non-competitive inhibition, mixed inhibition, allosteric regulation, enzymes used in industrial biotechnology. Part 2: Biochemical Methodologies includes lectures and experimental laboratory work. Topics covered include: 1) analysis of biomolecules: fundamental principles; 2) methodologies for protein separation; 3) methodologies for protein analysis. The experimental laboratory course takes place at the beginning of the course and introduces students to the basic approaches for the determination of proteins: amount, separation and identification. The laboratory covers the following experimental activities: 1) determination of protein content by using a colorimetric assay; 2) separation of a mixture of known proteins by using a chromatographic analysis; 3) identification of purified proteins using spectrophotometric and electrophoretic techniques. Assessment is based on an oral exam with at least 3 questions related to the topics covered in the course in order to verify and evaluate the student's knowledge of the contents developed and discussed during the lectures and in the experimental laboratory.

Language(s) of Instruction

English

Host Institution Course Number

64841

Host Institution Course Title
BIOCHEMISTRY (LM)

Host Institution Course Details

Host Institution Campus
SCIENZE

Host Institution Faculty

Host Institution Degree

Host Institution Department
Low carbon technologies and sustainable chemistry

Course Last Reviewed

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