UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biochemistry

2324-1-I0201D127-I0201D101M

Aims

The course aims to teach the basic mechanisms that regulate the molecular organization, the biochemical reactions, the cellular and sub-cellular morphology and the metabolic pathways.

Contents

The student will learn 1) the general information on the molecules that make up living matter; 2) the structure, function, mechanism of action of enzymes and their role in metabolic regulation; 3) the mechanism by which the living organism produces energy; 4) nutritional aspects as a source of energy in everyday life and in physical exercise; 5) digestive processes, the molecules involved in energy metabolism.

Detailed program

Introduction to the course and general information on living matter. Structural biochemistry: Carbohydrates, Lipids, Proteins, Nucleotides. Biochemical reactions, enzymes, enzymatic kinetics, regulation. Bioenergetics, respiratory chain, oxidative phosphorylation. Principles of digestion and absorption of nutrients. Nutrition and Vitamins. Energy metabolism. Muscle biochemistry and bioenergetics of muscle contraction. Caloric value, caloric equivalent, the fuel of choice in muscular work. Different exergonic systems in physical exercise (aerobic and anaerobic physical activity).

Prerequisites

Teaching form

Frontal lectures

Textbook and teaching resource

Siliprandi Tettamanti Biochimica Medica V Ed Piccin

Di Giulio A., Fiorilli A., Stefanelli C., Biochimica per le scienze motorie, Casa Ed Ambrosiana

Bertoli, Colombo, Magni, Marin Palestini Chimica e Biochimica Edises anche in e-book

Nelson and Cox Fondamenti di biochimica di Lehninger Ed Zanichelli 2021 anche in e-book

Semester

1st year, I semester

Assessment method

Written test: questions aimed at evaluating the acquisition of the notions indicated in the section detailed program. 15-20 multiple choice and true/false questions.

Office hours

on appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY