UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Biochemistry

2526-1-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.
The student will acquire fundamental knowledge of the structure and function of key biomolecules (carbohydrates, lipids, proteins, nucleic acids), basic mechanisms of cellular metabolism, bioenergetics, and enzyme regulation. Core concepts will be introduced to support the understanding of the biochemical basis of physiological and pathological processes relevant to the physiotherapy profession.

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. Caloric value, caloric equivalent, the fuel of choice in muscular work.

Prerequisites

Biology and Chemistry

Teaching form

6 hr (3 classes of 2 hr): In presence frontal lectures
2 hr (1 class of 2 hr): Online live (or not) lesson

Textbook and teaching resource

Slides.
Suggested books:
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: claudia.corbo@unimib.it

Sustainable Development Goals

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