UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Biochemistry

2425-3-H4102D018-H4102D051M

Aims

To provide the concepts necessary for understanding biological phenomena and the energetic variation associated with them. The course will focus on the molecular basis for understanding the processes underlying the bone and muscle metabolism.

Contents

Biochemistry of the bone remodelling. Biochemical markers of bone deposition and reabsorption. Growth factors and hormones involved in bone remodelling. Biochemistry of the skeletal muscle. Metabolic changes in physical exercise. Nutritional aspects and oxidative stress of the locomotor system.

Detailed program

Biochemistry of the bone reabsorption. Homeostasis of bone remodelling. Collagen and calcium metabolism. Hormones involved in the regulation of osteoblasts and osteoclasts. Biochemical markers of bone deposition and reabsorption. Metabolism of carbs, lipids, proteins, fatty acids, aminoacids and vitamins in muscle contraction. Metabolic changes during physical activity. Nutritional state and food supplements for muscle contraction. Oxidative stress, free radicals in muscle contraction. Muscle damages connected to physical activity.

Prerequisites

Basic knowledge of biochemistry, biology and chemistry.

Teaching form

8 h (4 lessons, 2 h each): Frontal Lesson (DE), face-to-face lessons
2 h (1 lesson of 2 h): Frontal Lesson (DE), online lessons

Frontal lectures that require the active participation of students who will be involved in the subject by proposing group work, and discussion of problems related to the change of body metabolism in different conditions.

Textbook and teaching resource

Biochemistry with clinical cases . T. Devlin; Biochemistry, Berg et al.

Scientific papers/reviews and slides used during lessons. All materials will be loaded on e-learning platform.

Semester

First semester.

Assessment method

Individual written examination
6 multiple-choice questions (5 marks each) on frontal lesson, together with the other modules of the LMVT
to be completed in 30 minutes.

The questions proposed in the written exam will be constructed in such a way as to induce the student to biochemical-clinical reasoning, to understand the units of measurement and to be able to evaluate the skills and competences acquired according to the objectives of the course.

There are no *itinere* tests planned.

Office hours

on appointment to francesca.re1@unimib.it

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING