UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Genaral Physiology

2627-1-E3006Q014-E3006Q01401

Aims

1. Knowledge and comprehension.

The course brings the students to understand the fundamental physiological mechanisms necessary to understand the topics treated in the Ocular Physiology module.

2. Applied knowledge and comprehension.

These concepts are indispensable for further studies in Ocular Physiology, Pathology, Pharmacology, and Perception Psychology.

3. Making judgements.

The student will learn to apply the fundamental physiological knowledge to the different aspects of the eye pathophysiology.

4.Communication skills.

Being able to properly explain the basic concepts.

5. Learning skills.

The acquired physiological concepts and notions will enable the student to further pursue personal studies.

Contents

Introduction.

General aspects of cell metabolism.

Biophysics and membrane transport mechanisms.

Cellular physiology.

Organ physiology.

Detailed program

Cell biochemistry: energy exchanges and intermediate metabolism. Glycolisis and lactic acid.

Fundamentals of cell physiology and transmembrane transport (active and passive transports, osmotic fluxes, ion channels).

Mechanisms of excitability and cell signaling. Resting and action potential. Chemical and electrical synapses.

Function and regulation of the skeletal and smooth muscle.

Gas exchange and circulation.

Transepithelial transport: secretion and absorption.

Introduction to neuromuscular physiology.

Organization of the nervous and endocrine control of the organic functions.

Prerequisites

Human Anatomy and Histology. General Chemistry.

Teaching form

The lessons will be delivered in Italian, in presence.
The couse will end with an interactive lesson (2 hours) during which the teacher will discuss and deepen the topics of the course, and she will answer questions and provide clarifications according to students' requests.

Textbook and teaching resource

Slides will be available on the E-learning platform.

Textbooks:

Stanfield C., Principles of Human Physiology, Pearson 2017.

Randall et al., Animal Physiology, Freeman.

For consultation:

Kandel et al., Principles of Neural Sciences, McGraw-Hill.

Semester

II semester (March-early April).

Assessment method

There are no in itinere tests.

The oral exam can be carried out in English, on request.

It consists in a few questions on the treated topics, aimed to verify the student's comprehension of the fundamental concepts of the course and to verify the communication skills.

Passing the exam gives access to the oral exam of Ocular Physiology.

The evaluation concerns the student's level of preparation and his/her communicative sklills.

Office hours

Appointment by E-mail

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY | REDUCED INEQUALITIES