



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## **COURSE SYLLABUS**

### **Fundamentals of Human Physiology**

2425-2-H4102D010

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#### **Aims**

The course aims to provide knowledge about cellular functions at the basis of systems physiology. At the end of the course, the student will be able to understand how a cell can perform its vital functions to guarantee the homeostasis of the tissue to which it belongs thanks to its basic mechanisms. The student will be able to use this knowledge for the interpretation of the pathophysiological signs and symptoms, as a starting point for the study of the physiology of the individual systems subsequently treated in the vertical tracks.

#### **Contents**

The course is based on the systematic presentation of physiological concepts underlying the functions of the human body. The sequence of events leading to an imbalance of a specific function cannot be appreciated without a deep understanding of the basic biophysical and physiological mechanisms. Therefore, these mechanisms that guarantee functions at the cellular and tissue level will be presented. In particular, membrane transports, neuronal, muscular and cardiac cell excitability, the physiology of sensory systems, the motor control and muscle contraction will be analyzed.

During the course, the effects of the aging process and gender differences on human physiology will be emphasized.

#### **Detailed program**

Please, refer to the specific module

## **Prerequisites**

Anatomy, biology, genetics and physics

## **Teaching form**

Lessons will take place in person. The professor's lectures begin with an initial part where concepts are presented (lecture-based mode), followed by an interaction with the students that shapes the subsequent part of the lecture (interactive mode).

Whenever possible, clinical case analyzes will be proposed for the evaluation of specific physiological parameters

## **Textbook and teaching resource**

Please, refer to the specific module

## **Semester**

First semester

## **Assessment method**

There will be no ongoing tests.

The exam consists in a written test. Open questions will be posed to the student in order to evaluate the general knowledge of the topics. Moreover, the student will be asked to answer to questions that require the analysis of a complex phenomenon, its rationalization and the application of specific physiology principles and to solve simple exercises. Finally, a clinical case may be presented which will require the analysis of the interconnections between different physiological variables in the light of the theoretical paradigms.

## **Office hours**

The professors receive by appointment upon agreement by e-mail

## **Sustainable Development Goals**

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

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