UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Basic Elements of Neuroanatomy and Neurophysiology

**2324-1-E2401P002**

## Learning area

KNOWLEDGE AND SKILLS USEFUL TO UNDERSTAND, PROMOTE AND CHANGE INDIVIDUAL PSYCHOLOGICAL FUNCTIONING

## Learning objectives

Knowledge and understanding
• Overview of anatomic, physiological and neuroscientific methods to the study of the human brain
• Basis of neurobiology, neuroanatomy and neurophysiology of the central nervous system

Applying knowledge and understanding
• Linking the main motor and sensory functions to the anatomo-functional structure of the human nervous system
• Basic knowledge of the anatomo-functional underpinnings of brain dysfunctions e related behavioural disorders

## Contents

The main aim of the course is to provide a primer in neuroanatomy and neurophysiology, with particular emphasis on topics that are relevant for psychologists and cognitive neuroscientists.

## Detailed program

• Fundametal basis of neurobiology and electrophysiology of the neuron
• Development of the human nervous system
• Neuroanatomy of the human brain
• Cerebral blood and liquoral circulation
• Sensory systems
• Motor system
• Neurotransmitters and homeostatic control of the brain and behavior

## Prerequisites

A basic knowledge of biology facilitates the understanding of the course contents.

## Teaching methods

Lectures are delivered in Italian. In addition to lectures, part of the teaching will take place through exercises using three-dimensional models and drawings of the human brain. Review sessions of macro-topics of the course and tutorial and simulations of the written exam are scheduled.
The material (slides, scientific articles) is made available on the e-learning site of the course so that it can also be used by non-attending students.

## Assessment methods

The final examination is written, with optional oral at the student's request or at the request of the lecturer. The written exam comprises a section with multiple-choice questions and one open question. Multiple-choice questions are designed at ascertaining the extensive preparation on the course topics, and it consists in questions assessing the acquisition of knowledge of the neuroanatomy, neurobiology and neurophysiology of the human brain. The open question allows assessing the ability to expound on a topic covered in class, using an appropriate technical language. The evaluation criteria are: the number of correct answers to the multiple-choice questions, a comprehensive and timely answer at the open question. The optional oral test consists of an interview on the topics covered in class.

International students (Erasmus program) may opt to answer the open question in English or to require to take the oral exam in English.

## Textbooks and Reading Materials

Maravita. A., Fondamenti anatomofisiologici della attività psichica. Poletto Editore, 2020.

*Texts for further study (optional):* Felten D.L., Shetty A.N., Atlante di Neuroscienze di Netter. Elsevier, 2010 (also available in English).

***International students may adopt***: Bear M.F., Connor B.W., Paradiso M.A., Neuroscience: Exploring the Brain. Publisher: Lippincott Williams (from IV edition and later)

## Sustainable Development Goals

GOOD HEALTH AND WELL-BEING