



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Physiological Psychology - 1

2526-2-E2401P008-T1

---

#### Learning area

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

#### Learning objectives

##### Knowledge and understanding

- Knowing the neuroanatomical and functional bases of human mind in order to understand the cognitive, emotional and behavioral functions.

##### Applying knowledge and understanding

- Ability to recognize and frame normal and abnormal behaviour in the context of the relevant neurofunctional systems.
- Ability to identify key diagnostic (behavioural or instrumental) tools to approach neurocognitive disorders and, in general, in neuroscience research.

##### Making judgements

- The course fosters the ability to critically and independently analyze data, concepts, and neuroscientific theories, encouraging personal reflection on complex topics such as consciousness, pain, emotions, empathy, and biological rhythms.

##### Communication skills

- Students develop command of the technical language specific to neuroscience, learning to communicate

scientific content, findings, and arguments clearly and effectively, both to specialist and non-specialist audiences.

### **Learning skills**

- The course promotes autonomous study and personal in-depth exploration, providing methodological and theoretical foundations necessary to pursue further training or research in the field of neuroscience with critical thinking and initiative.

### **Contents**

The course aims to provide students with a basic knowledge of the neuro-functional architecture of the human cognitive and emotional processes. In particular, the neuro-functional bases of the nervous system will be provided, as well as the main theories and models on mental functions developed in the field of Cognitive Neuroscience, in order to favor the understanding of the cognitive, emotional and behavioral functioning of the individuals both in the healthy and clinical population.

### **Detailed program**

- Introduction to cognitive neuroscience
- Methods of cognitive neuroscience: behavioral, neuropsychological, electrophysiological, neuroimaging, TMS, DTI
- Electroencephalogram, sleep and biological rhythms
- Perceptual processes and recognition of objects and faces
- Acoustic processing of musical and linguistic sounds
- Action and Movements
- Selective attention and attention systems
- Memory systems
- Emotions and social cognition
- Language and communication
- Cerebral lateralization and hemispheric specialization
- Executive processes and frontal lobes
- Consciousness

### **Prerequisites**

This course requires a basic knowledge of anatomy and physiology of the nervous system and its cognitive functions.

### **Teaching methods**

Frontal lessons with slides and audio/video presentations.

(a) nature of teaching: dispensing (95%) and interactive (5%)

(b) type of teaching activity: lecture

(c) hours possibly delivered remotely = none (except that for emergency)

## **Assessment methods**

Written test on topics covered in class.

The written exam may be structured in various formats depending on the content being assessed. It may include closed-ended questions (such as multiple-choice or single-answer items), as well as open-ended questions of varying length. These may range from concise essay-type responses to short essays requiring the discussion and exposition of topics covered during lectures.

## **Textbooks and Reading Materials**

Gazzaniga M.S., Ivry R.B., Mangun G.R. (2019). Cognitive Neuroscience: The Biology of the Mind, 5th Edition. Norton Publisher. (chapters 2, 13, 14 not included in the program).

Bear M.F., Connors B.W., Paradiso M.A. (2007). Neuroscience. 3° ed., (Only chapter 19, concerning EEG, Sleep and Biological rhythms). Milano, Masson.

## **Sustainable Development Goals**

GOOD HEALTH AND WELL-BEING

---