UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Physiological Psychology - 2

2021-2-E2401P008-T2

Learning area

1: Knowledge and skills useful to understand, promote and change individual psychological functioning

Learning objectives

Knowledge and understanding

- Understanding the neuroanatomical and functional bases of the human mind in order to explain the cognitive and emotional behavior of individuals

Applying knowledge and understanding

- Ability to recognize and frame normal and abnormal behaviour in the contex to recognize and frame normal and abnormal behaviour in the contex of the relevant neurofunctional systems

- Ability to identify key diagnostic (behavioural or instrumental) tools to approach neurocognitive disorders and in general in neuroscience research

Contents

This course provides information about the neurofunctional architecture of the homeostasis, of cognition and emotion of human beings.

The course represents the completion of the 1st year “Anatomical and physiological foundations of psychic activity” course where the basics of neuroanatomy and neurophysiology were provided.

Thus, during this course we will illustrate the most advanced aspects of the neurophysiology of cognitive functions, regulatory functions and human behaviour. The final goal is to allow the student to frame specific behaviours (normal and pathological) in the context of the functioning or malfunctioning of specific neural systems

Detailed program

- Introduction to psychological physiology, cognitive neuroscience and their history
- Methods in cognitive neuroscience: (behavioural and neuropsychological methods, EEG/ERPs,TMS, tDCS, neuroimaging).
- Rhythms of the brain and sleep
- The chemical control of behaviour
- Motivation: reward mechanisms and addiction
- Brain and sex and reproduction
- Emotions
- Perception: object and faces
- Spatial cognition
- Attention
- Language and reading
- Brain development and plasticity
- Memory systems and their abnormalities.
- Molecular mechanisms of learning and memory
- Hemispheric specialization
- Cognitive aspects of motor control
- Executive functions and the frontal lobes
- Social cognition
- Consciousness

Prerequisites

This course requires a basic knowledge of anatomy and physiology of the nervous system, provided in the course “Anatomical and physiological foundations of psychic activity”.

Teaching methods

Frontal lessons, videos, and individual learning

Lessons will be held in presence or through online video lessons, according to the University’s regulations regarding the COVID-19 emergency situation. In both cases, all lessons will be video recorded and made available to the students.

Assessment methods

The exam includes a written test to be performed in a computer lab. The written test consists of 30 multiple choices questions and an open question that requires a large and critical discussion on one topic of the course. The questions are aimed at ascertaining the effective acquisition of both theoretical knowledge and the ability to connect different aspects of psychological physiology and cognitive neuroscience. The answers to the open question will be evaluated in terms of correctness of the answers, argumentative capacity, and analytic discussion of the topics of the course. For students who request it and that have passed the written test, an oral interview will be also made available, on all the topics of the course. The final mark will be obtained by the average of the scores obtained in the written test and in the oral evaluation.

During the Covid-19 emergency, exams will be conducted according to the University’s regulations regarding the COVID-19 emergency situation.

Textbooks and Reading Materials

Detailed information about the textbook and reading materials for this course will be published on the e-learning page of the course.