



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Psicologia Fisiologica - 1

2627-2-E2403P009-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

The written examination consists of open-ended or semi-open-ended questions (typically ranging from 4 to 10), depending on the required content (e.g., brief factual responses or more extensive descriptions). The exam may therefore include a combination of questions requiring concise answers and open-ended questions of varying length (equivalent to very short essays), as well as short essays requiring students to discuss topics covered during the lectures.

No midterm assessments are scheduled.

Assessment is based on the accuracy and completeness of the content, clarity of presentation, and appropriate use of technical and scientific terminology.

The final grade is determined by the overall score achieved across the different sections of the examination, according to the following grading scale:

18: Barely sufficient knowledge; minimal theoretical understanding and interpretative skills.

19–22: Sufficient knowledge of the fundamental concepts, with some theoretical or practical uncertainties.

23–26: Fair to good knowledge; good theoretical understanding and/or application skills, with some minor inaccuracies.

27–30: Solid knowledge; good command of the subject matter and critical thinking skills.

30 with honors: Comprehensive knowledge; excellent mastery of the subject matter and outstanding command of scientific and technical language.

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.

Although this course is held in Italian, for Erasmus students, course material can also be available in English (Gazzaniga M.S., Ivry R.B., Mangun G.R. Cognitive Neuroscience: The Biology of the Mind (fifth edition), Norton & Company)., and students can take the exam in English if they wish to do so.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING
