UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Neuropsychology

2526-1-F5110P001

Learning area

PSYCHOLOGICAL FUNCTIONING: MODELS AND MEHODS FOR ASSESSMENT

Learning objectives

The course aims to create and/or consolidate the foundations of cognitive neuroscience and neuropsychology necessary for subsequent in-depth studies on clinical and research aspects in the neuropsychological field.

Knowledge and Understanding

- Introduction to the course.
- History of neuroscience and neuropsychology.
- Neuropsychological epistemology and methodological foundations of neuropsychology: simple and double dissociation between symptoms and signs; neuropsychological syndromes (anatomical and functional).
- The neurological examination. Basics of neuropsychological examination.
- Neuroanatomy for neuropsychology.
- Neuropsychology and neuroimaging: principles of anatomo-clinical correlation.
- The main causes of neuropsychological deficits: cerebrovascular diseases, head trauma, dementias, epilepsy, demyelinating diseases, movement disorders, infections, tumors.
- Cognitive neuroscience and neuropsychology of language, visual perception, spatial cognition, motor control, memory, and consciousness.

Ability to Apply Knowledge and Understanding

- Promote the ability to understand and use neurological knowledge and data about patients, useful in the neuropsychological field.
- Promote the ability to map brain lesions and make anatomo-clinical correlations.

- Promote the ability to set up and perform a neuropsychological assessment.
- Promote the ability to use neuropsychological information for scientific research in the field of cognitive sciences and neuroscience.

Making Judgements
The student will be able to develop critical and informed autonomy in interpreting neuropsychological and neuroscientific data, evaluating anatomo-clinical correlations, and formulating evidence-based hypotheses. They will be capable of critically analyzing neuropsychological test results, identifying key neuropsychological syndromes, and reflecting on clinical and research implications, even in complex and interdisciplinary contexts.

Communication Skills
The student will acquire effective communication skills to clearly and accurately convey neuropsychological concepts and findings to audiences with varying levels of expertise, including colleagues, patients, and professionals from other fields. They will be able to produce scientific written reports and oral presentations integrating theoretical knowledge and practical applications, facilitating interdisciplinary collaboration.

Learning Skills
The student will develop the ability for autonomous and continuous learning, staying updated on new discoveries and methodologies in neuropsychology and cognitive neuroscience. They will be able to organize their own study and research paths, utilize advanced scientific and technological resources, and critically reflect on the effectiveness of their learning methods.

Contents

History and methods of neuropsychology; elements of neurology and neuroimaging; clinical neuropsychological exam and psychometric neuropsychological tests; main diseases responsible of neuropsychological disorders (elements); main neuropsychological syndromes brought about by focal and diffuse brain damage.

Detailed program

- History of neuropsychology.
- Methodological foundations of neuropsychology: simple and double dissociation between symptoms and signs; anatomical and functional neuropsychological syndromes.
- Neurology and neuroimaging: anatomoclinical correlations in neuropsychology.
- Neuropsychological evaluation: clinical assessment.
- Psychometric neuropsychological tests: general principles.
- Main causes of neuropsychological deficits: cerebrovascular diseases, head trauma, dementias, epilepsy, demyelinating diseases, movement disorders, infections, tumors.
- Cognitive neuroscience and neuropsychology of the main cognitive functions.
- Language, aphasias, alexias and agraphias.
- Number processing and dyscalculia.
- Motor control and apraxia.
- Memory and memory disorders.
- Visual perception and visual agnosias.
- Spatial cognition, unilateral spatial neglect, topographical disorientation.
- Disorders of attention.
- Disorders of executive processes.
- Consciousness and its disorders.

Prerequisites

It is strongly recommended that the student is familiar with the topics typically taught in the psychobiological and general psychology courses of the BA degree in psychology (for example, see the programs of the courses Anatomo-Physiological Foundations of Psychic Activity, Physiological Psychology; General Psychology I and II of the BA degree course called Psychological Sciences and Techniques of this University).

Teaching methods

Lecture-based teaching and interactive teaching in Italian; exercises in the class-room, audiovisual material.

Assessment methods

Erasmus students can contact the teacher to agree on the possibility of studying on a bibliography in English and / or the possibility of taking the exam in English.

Written examination (30 multiple choice questionnaire) followed by an essay and if needed or requested by the student oral examination (optional).

A minimum score of 18/30 at the multiple choice questionnaire is needed to be further assessed and proceed with the examination.

In the multiple choice questionnaire, each question has four alternative answers, only one being correct. One point is given for each correct answer; 0 points are given for errors or omissions.

In the short essay, the student will write on one of two possible subjects corresponding to one of the main themes covered during the course. For example:

1. Aphasias and the Wernicke-Lichteim model: heuristic power and limits of the model.
2. Principles of anatomical behavioral inference in neuropsychology: methods, advantages and limitations.

Textbooks and Reading Materials

- Denes GF e Pizzamigio L (Editors) Handbook Of Clinical And Experimental Neuropsychology. Psychology Press, 1998 ISBN 10: 086377542XISBN 13: 9780863775420
- Gazzaniga M., Ivry R.B., Mangun G.R. Cognitive neuroscience: the biology of the mind. Fifth edition (2018).
- Materials made available by the professor on the website www.eraldopaulesu.it

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION