UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Neuropsychological Rehabilitation

2324-2-F5104P024

Learning area

Models and techniques for neuropsychological rehabilitation treatments.

Learning objectives

Knowledge and understanding
• Neurobiological and functional basis of spontaneous and treatment-induced recovery of cognitive, emotional-motivational and behavioral deficits, caused by brain lesions and dysfunctions.
• Efficacy of neuropsychological treatments.

Applying knowledge and understanding
• Setting up, running, and evaluation of neuropsychological rehabilitation treatments.
• Ability to evaluate the relevant scientific literature, in order to plan and perform clinical and research activities in this area.

Contents

The course provides information concerning the neurobiological and functional basis of recovery - both spontaneous and brought about by rehabilitation treatments - of cognitive and behavioral deficits caused by brain lesions and dysfunctions. The course provides information aimed at the acquisition of knowledge and skills concerning the setting-up and running of neuropsychological rehabilitation treatments and the ability to evaluate the relevant scientific literature.

Detailed program

Introduction
• Historical background, methodological foundations.
• Spontaneous functional recovery and neuroplasticity.
• Efficacy of rehabilitation depending on the neurological etiology of the deficit and its spontaneous course.

Main rehabilitation methods
• Behavioral methods, based on the explicit training of the defective cognitive and emotional-motivational function(s) and the abnormal behaviors.
• Training to the vicarious use of not/less impaired cognitive functions and skills.
• Sensory stimulations.
• The application of non-invasive brain stimulation techniques in rehabilitation.

Rehabilitation of different neuropsychological functions
• Aphasia: disorders of oral and written language (dyslexias and dysgraphias).
• Acalculia.
• Apraxia: disorders of complex intentional movement.
•Unilateral spatial neglect and other deficits of spatial cognition.
• Amnesia and deficits of short-term memory.
• “Dysexecutive” or “frontal” syndrome and disorders of non-spatial attention.
• Agnosia: disorders of object identification in the visual and acoustic modalities.

Neuropsychological treatment and support in specific diseases
• Dementias.
• Head-injury and chronic deficits of consciousness.

Evaluation of the efficacy of a neuropsychological treatment.
• Theoretical and methodological principles to evaluate the efficacy of a rehabilitation protocol.

Prerequisites

The course requires previous knowledge in these areas:

- Genetics and Biology, as taught in the relevant courses (basic knowledge);
- the anatomy and the physiology of the central nervous system, as taught in the course of “Anatomo-physiological Foundations of Psychic Activity“;
- the neurofunctional organization of cognitive and emotional-motivational processes, as taught in the course of “Physiological psychology”.
  Finally, knowledge is required concerning the main neuropsychological syndromes and the clinical diagnosis in neuropsychology, as taught in the course of Neuropsychology of the adult and the elderly.

Teaching methods

Theoretical classes; illustration and discussion of diagnostic and rehabilitation materials and tasks for the assessment of neuropsychological recovery.

Although this course is held in Italian, for Erasmus students, course material can also be available in English, and students can take the exam in English if they wish to do so.

Assessment methods

Written assessment.
The written assessment includes multiple choice and open-choice questions on the topics of the course. An example of the organization of the written assessment is the following:
a) 30 multiple choice 4-alternative questions, with 1 correct choice. One point is assigned for each correct answer, with no penalty. The minimum score for a successful assessment is 18 out of 30 correct answers.
b) Two open questions on clinical cases requiring a complete and concise response. A maximum of 30 points is assigned to each response to the open questions.
Example: “A 74-year-old woman is hospitalized following left cerebral stroke. The neuropsychological assessment reveals the presence of conduction aphasia and phonemic buffer deficit. Critically describe the objectives of the rehabilitation program and the main rehabilitation techniques”.
More examples of open questions will be provided in class.
The final score will be the average of the three scores.

Oral assessment (optional after the written assessment).
The oral assessment includes one or more open questions to be answered with concise and complete responses.

Textbooks and Reading Materials

• Vallar, G., & Papagno, C., a cura di (2022). Manuale di riabilitazione neuropsicologica. Bologna: Il Mulino.
• Mazzucchi A., a cura di (2020). La riabilitazione neuropsicologica. Premesse teoriche e applicazioni cliniche”. Quarta ed. Edra. (Cap. 1, 2, 5, 6, 18).
• Deteailed information on the learning materials will be made available on the web site of the course

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING