



UNIVERSITÀ DEGLI STUDI DI PALERMO

| | |
|-------------------------------------|--|
| DEPARTMENT | Scienze Psicologiche, Pedagogiche, dell'Esercizio Fisico e della Formazione |
| ACADEMIC YEAR | 2021/2022 |
| MASTER'S DEGREE (MSC) | CLINICAL PSYCHOLOGY |
| SUBJECT | COGNITIVE NEUROSCIENCE |
| TYPE OF EDUCATIONAL ACTIVITY | B |
| AMBIT | 50474-Psicologia generale e fisiologica |
| CODE | 19724 |
| SCIENTIFIC SECTOR(S) | M-PSI/02 |
| HEAD PROFESSOR(S) | OLIVERI MASSIMILIANO Professore Ordinario Univ. di PALERMO |
| OTHER PROFESSOR(S) | |
| CREDITS | 6 |
| INDIVIDUAL STUDY (Hrs) | 110 |
| COURSE ACTIVITY (Hrs) | 40 |
| PROPAEDEUTICAL SUBJECTS | |
| MUTUALIZATION | |
| YEAR | 1 |
| TERM (SEMESTER) | 1° semester |
| ATTENDANCE | Not mandatory |
| EVALUATION | Out of 30 |
| TEACHER OFFICE HOURS | OLIVERI MASSIMILIANO Friday 10:00 12:00 Stanza TEAMS con codice alx3rb |

DOCENTE: Prof. MASSIMILIANO OLIVERI

| | |
|-------------------------------|--|
| PREREQUISITES | Knowledge of physiological psychology, in particular of functional neuroanatomy. Basic notions of chemistry, physics, mathematics. |
| LEARNING OUTCOMES | Students will deep knowledge and skills necessary for both basic and applied research in the fields of psychology and medicine, with particular reference to training in the neuropsychological, neuroimaging and brain stimulation fields of study, as well as in diagnosis of cognitive disorders. The objectives are part of the general objectives of the course, aimed at forming specific competencies for clinical psychology. |
| ASSESSMENT METHODS | Preliminary test with 30 questions on the following topics: methods of cognitive neuroscience, hemispheric specialization, object recognition, motor system, cellular mechanisms of memory. The test will be evaluated by assigning 1 point to each correct response. Final oral examination, with 3 questions concerning of the topics for those students who will not have executed the preliminary test. For students who will have executed preliminary test, the topics of oral examination will be the following ones: emotions, language, executive functions, social cognition, consciousness. The score of the preliminary test will be averaged with that of oral examination (50% preliminary test; 50% oral examination). Preliminary test will be performed during the week selected for preliminary examinations. In the oral examination, the score of 18/30 will be assigned in the case of superficial and scholastic knowledge of the topics, while the score of 30/30 will be assigned in the case of excellent knowledge. |
| EDUCATIONAL OBJECTIVES | Advanced knowledge of principles and methods of cognitive neuroscience, finalized to basic research as well to diagnosis and rehabilitation programs. Ability to select and read scientific literature on cognitive neuroscience, and to correlate cognitive functions with neural substrates. These objectives contribute to one of the general objectives of the course, i.e. to increase knowledge on both basic and applied neuroscientific research. Moreover, these objectives are preliminary to the development of professional ability to make neuropsychological evaluations and diagnoses. |
| TEACHING METHODS | frontal lessons, experimental training in lab. |
| SUGGESTED BIBLIOGRAPHY | Gazzaniga et al. Neuroscienze Cognitive. Zanichelli. Terza edizione italiana condotta sulla quinta edizione americana 2021. ISBN: 9788808320254 |

SYLLABUS

| Hrs | Frontal teaching |
|-----|---|
| 3 | Methods of cognitive neuroscience |
| 2 | Object recognition: what and where pathways; computational problems in object recognition; face perception. |
| 4 | Motor system and control of action: neuronatomy of motor systems; computational aspects of motor control; physiology of motor pathways; goals selection and action programs; basal ganglia; mirror neurons; learning of new abilities |
| 4 | Attention: attentional models; neural mechanisms of attention and selective perception; attentional networks. |
| 3 | Neural bases of memory: anatomy of memory; mechanisms of memory; memory system of the mesial temporal lobe; memory consolidation; cellular bases of learning and memory. |
| 3 | Emotions: neural correlates of emotions: theories of emotions; amygdala; interactions between emotions and other cognitive processes; cognitive control of emotions; disgust, happiness, love. |
| 4 | The language: anatomy of language; brain correlates of language; language comprehension: neural models of language comprehension; neural models of language production; evolution of language. |
| 4 | Executive functions and decision making: anatomy of cognitive control; goal oriented behaviors; decisional processes; goal planning; control of efficacy of goal oriented behavior. |
| 4 | Social Cognition |
| Hrs | Practice |
| 2 | Hemispheric specialization. |
| 2 | Measures of cortical excitability. |
| Hrs | Workshops |
| 5 | Lab training on non invasive brain stimulation. |