



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2023/2024		
MASTER'S DEGREE (MSC)	NEUROSCIENCE		
INTEGRATED COURSE	PSYCOBIOLOGY AND CLINICAL BIOCHEMISTRY - INTEGRATED COURSE		
CODE	21876		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	M-PSI/02, BIO/12		
HEAD PROFESSOR(S)	OLIVERI MASSIMILIANO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	OLIVERI MASSIMILIANO	Professore Ordinario	Univ. di PALERMO
	BIVONA GIULIA	Professore Associato	Univ. di PALERMO
CREDITS	8		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>BIVONA GIULIA Wednesday 15:30 16:30 Dipartimento di Biopatologia e Biotecnologie Mediche, Sezione di Biochimica Clinica.</p> <p>OLIVERI MASSIMILIANO Friday 10:00 12:00 Stanza TEAMS con codice alx3rxb</p>		

DOCENTE: Prof. MASSIMILIANO OLIVERI

PREREQUISITES	The student will know the biochemistry and physiology of major organ systems that constitute the human body and know the pathophysiology of major diseases.
LEARNING OUTCOMES	<p>Knowledge and understanding: Acquiring the basic knowledge of the Clinical Biochemistry through lectures and personal study of texts and scientific publications, and the ability to use the specific language of discipline. Know and understand the different functional aspects of a neurophysiological and psychobiological nature. Knowing the molecular, cellular, biochemical and physiological involved both in the body's homeostasis and neurodegenerative diseases. Understanding the main laboratory tests and their correlations with the neurodegenerative diseases. This knowledge will be acquired through lectures and theoretical-practical activities and, it will be verify through oral exam.</p> <p>Applying knowledge and understanding: Demonstrating the ability to apply the acquired knowledge and understanding through the use of diagnostic strategies, performed with biotechnologies of the field of Clinical Biochemistry, and even based on both knowledge acquired in clinical pathophysiology and choose and use of appropriate equipment and biomolecular methods, identifying individual problems, advantages and limitations. These skills will be assessed through theoretical and practical exercises.</p> <p>Making judgments: Being able to assess the implications of biotechnological choices of the disciplines and the results obtained, by considering the data of the international bibliography.</p> <p>Communication skills: Being able to describe in an appropriate and suitable manner to the other health care professionals a critical interpretation of the obtained results of laboratory tests. Being able to describe to other health care professionals the presence of a laboratory result and its complications.</p> <p>Learning skills: Consolidating the knowledge of Clinical Biochemistry in the field of neurodegenerative diseases. Being able to deepen the study of laboratory tests for in cognitive or neurological deficits in order to perform a continuous and regular updating of scientific knowledge progressively in developing. Being able to perform a literature research, in order to correctly and periodically update the scientific knowledge. Acquiring the ability to improve the knowledge with Masters of Science of the I and II level. Knowing the application and limitations of biomedicine biotechnology.</p>
ASSESSMENT METHODS	The learning assessment consists in itinere evaluations, an oral examination and a multiple choice test with 30 questions covering all the topics of the program. The test will be evaluated by assigning 1 point to each correct response. Oral examination consists in a conversation, order to check competences and subject knowledge required from the course; the evaluation is expressed in thirtieths. The questions will tend to test the learning achieved by assessing a) the knowledge captured in the many fields of neurosciences b) the processing capacity, c) possession of adequate exhibition capacity in relation to the diagnosis and in particular in the field of neurodegenerative diseases. The sufficient threshold will be reached when the student shows knowledge and understanding of the issues at least in general terms, and has minimal application knowledge in order to solve concrete cases; the student will also have presentation skills and of argument as to allow the transmission of his knowledge to the examiner. Below this threshold, the examination will be insufficient.
TEACHING METHODS	The didactic activity takes place through lectures and laboratory activities.

**MODULE
PSYCHOBIOLOGY**

Prof. MASSIMILIANO OLIVERI

SUGGESTED BIBLIOGRAPHY

The Cognitive Neurosciences, Sixth Edition
Edited by David Poeppel, George R. Mangun and Michael S. Gazzaniga
ISBN: 9780262043250

AMBIT	20879-Attività formative affini o integrative
INDIVIDUAL STUDY (Hrs)	51
COURSE ACTIVITY (Hrs)	24

EDUCATIONAL OBJECTIVES OF THE MODULE

Promote the ability to analyze the relations between behavior, mental functions and brain structure, through the integration of biology, physiology and psychology.

SYLLABUS

Hrs	Frontal teaching
3	Psychobiology of Vision
4	Motivation
4	Neural correlates of emotions
4	Brain rhythms and sleep
3	Cognitive control and executive functions
3	Psychobiology of memory
3	Psychobiology of Language

**MODULE
CLINICAL BIOCHEMISTRY**

Prof.ssa GIULIA BIVONA

SUGGESTED BIBLIOGRAPHY

Authors: William J. Marshall, Márta Lapsley, Andrew Day, Kate Shipman

Title: Clinical Chemistry

Edition: 9th

Editor: Elsevier

ISBN-13: 978-0702079368

AMBIT	50505-Discipline del settore biomedico
INDIVIDUAL STUDY (Hrs)	81
COURSE ACTIVITY (Hrs)	44

EDUCATIONAL OBJECTIVES OF THE MODULE

-To know the major biomarkers, including candidate molecules, as tools for diagnosis, prognosis and treatment targets of neuropsychiatric diseases.

-To know how to translate informations into clinical practice, by acquiring basic research criteria and critically reviewing published data around neuroscience -relevant topics.

SYLLABUS

Hrs	Frontal teaching
5	How to interpretate diagnostics tests by sensitivity, specificity, PPV and NPV
4	Hormones involved in blood glucose and body weight regulation.
3	Diabetes mellitus laboratory tests.
4	The role of dysfunctional lipoproteins metabolism and dislipidemia in cardiovascular risk exposure.
5	Cardiac, liver and kidney biomarkers.
2	Blood calcium regulation and Vitamin D.
3	Neuroimmune network: a landscape from the first evidence toward the current knowledge.
2	Neuroimmune network: the role of cytokines in regulating brain function.
2	Neuroimmune network: how microglia sustain brain function in health and disease.
2	Neuroimmune network dysfunction examples: Alzheimer's Disease and brain cancer.
Hrs	Workshops
3	Flow Cytometry: basic notions
3	Sample preparation and processing for Cytometry analyses.
3	Microglia-specific marker analyses by flow Cytometry
3	neuroimmune network biomarkers identification by flow Cytometry.