



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2020/2021		
MASTER'S DEGREE (MSC)	NEUROSCIENCES		
INTEGRATED COURSE	NEUROPATHOLOGY, NEUROPHARMACOLOGY AND NEUROLOGY - INTEGRATED COURSE		
CODE	21141		
MODULES	Yes		
NUMBER OF MODULES	3		
SCIENTIFIC SECTOR(S)	MED/26, MED/04, BIO/14		
HEAD PROFESSOR(S)	DIELI FRANCESCO	Professore Ordinario	Univ. di PALERMO
OTHER PROFESSOR(S)	LA BELLA VINCENZO	Professore Ordinario	Univ. di PALERMO
	CANNIZZARO CARLA	Professore Ordinario	Univ. di PALERMO
	DIELI FRANCESCO	Professore Ordinario	Univ. di PALERMO
CREDITS	14		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	2° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p>CANNIZZARO CARLA</p> <p>Thursday 11:00 13:00 Farmacologia, Edificio 11d - AOUP Paolo Giaccone, Via del Vespro 129 Palermo</p> <p>Friday 10:00 12:00 Farmacologia, Edificio 11d - AOUP Paolo Giaccone, Via del Vespro 129 Palermo</p> <p>DIELI FRANCESCO</p> <p>Wednesday 12:00 14:00 Central Laboratory of Advanced Diagnosis and Biomedical Research (CLADIBIOR) c/o Policlinico Universitario, Via del Vespro 129, Palermo. Il docente riceve soltanto per appuntamento, per cui è necessario contattare il docente per e.mail con un certo anticipo.</p> <p>LA BELLA VINCENZO</p> <p>Wednesday 11:00 12:00 stanza di studio del docente Centro Esperto SLA Via G La Loggia 1 - 90129 Palermo 1° piano c/o Laboratorio Neurochimica</p>		

DOCENTE: Prof. FRANCESCO DIELI

PREREQUISITES	In order to understand the content and learning objectives of the course, the student must have basic knowledge of the anatomical, biochemical, physiological and pathological foundations of the nervous system. It is also important to have a good background on the cellular and molecular biology of the neuron and glia.
LEARNING OUTCOMES	<p>Knowledge and understanding of the fundamental concepts of the disciplines of the module, of the pharmacological bases of therapies, of the pathological, etiopathogenic and clinical foundations of the main diseases of the nervous system. Knowledge and understanding of genetics, neurochemistry and neuroimaging correlates of the main neurological disorders.</p> <p>Autonomy of judgment in the critical evaluation of the scientific literature in the neuro-pharmacological, neuropathological and neurological fields and acquisition of communication skills with professionals in the sector and related disciplines. Ability to apply knowledge and understanding in the development of an original research hypothesis.</p> <p>Ability to learn the neuropharmacological foundations of nervous system therapy. Learning the pathological bases, the etiopathogenetic and clinical foundations of diseases of the nervous system.</p> <p>The student must demonstrate a good ability to use the notions learned to orient himself in the context of understanding and recognizing the foundations that allow him/her to frame the neurological diseases in the context of a clinical-pathogenetic, pathological and therapeutic standpoint</p>
ASSESSMENT METHODS	<p>The evaluation will be made through an oral test with a top score of 30/30. The test will consist of a minimum of 3/6 questions, spanning the three courses of the module, which will cover the entire program (with reference to the textbooks recommended by the teachers). The answers should highlight the student's ability to master the topics of the module and the ability to interpret concrete cases. The threshold of sufficiency will be reached when the student shows an acceptable knowledge and understanding of the topics.</p> <p>Below this minimum threshold the judgment will result insufficient. The more the student will be able to interact with the teacher and to show knowledge and exposure skills of the specific discipline, the more the evaluation will be positive.</p>
TEACHING METHODS	Lectures. To critically read and analyze both reviews and scientific papers in high impact journals.

MODULE NEUROPATHOLOGY

Prof. FRANCESCO DIELI

SUGGESTED BIBLIOGRAPHY

Robbins & Cotran Pathologic Basis of Disease, 9th Edition
di Abbas & Aster Kumar | 5 ago. 2014

AMBIT	50505-Discipline del settore biomedico
INDIVIDUAL STUDY (Hrs)	98
COURSE ACTIVITY (Hrs)	52

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the module I of the General Pathology is the understanding of the causes and the mechanisms that alter the health status, leading to the disease. It will be both from a molecular and a cellular point of view. After examining the mechanisms and the cellular and molecular mediators involved in the onset of the disease, some models of pathologies will be used to provide concrete examples of the pathophysiological processes underlying it. Furthermore, the concept of positive biology will be introduced, mentioning the main tools useful in the prevention of cell damage. Another fundamental objective will be to transmit to students the importance of the acquisition of concrete and certain scientific evidence, obtained from a careful and deep study of the literature.

SYLLABUS

Hrs	Frontal teaching
4	Etiology and pathogenesis. Diseases due to intrinsic and extrinsic causes. Homeostasis.
4	Cellular responses to stress and toxic insults: adaptation, injury and death
4	Variation of blood count during inflammation: normal values and their alteration. Cytometric diagnosis of haematological diseases. Anemias: fisiopatological and laboratory classification.
4	Inflammation: definition and biological significance, the mediators of inflammation. Proinflammatory cytokines and the chemokines, haematopoietic cytokine and the role of interferons. Cytokines and chemokines and their role in inflammation. Various forms of exudates.
4	Chronic inflammation: principal causes of chronic inflammation, cells and mediators of chronic inflammation, phases of the process, causes and phases of granuloma formation and related human diseases.
2	Wound repair mechanisms and related defects.
4	The systemic effects of inflammation: acute phase proteins, erythrocyte sedimentation rate, leukocytosis, fever and the effect of the cytokines on the hypothalamus. Glucocorticoids and the systemic effects.
2	Amyloidosis diseases: classification, etiopathogenesis and physiopathology.
2	Hypersensitivity reactions, definition of allergy, atopy and anaphylaxis. Gell and Coombs classification: general criteria and pathogenetic mechanisms, Koch phenomenon and tuberculin reaction, vasculitis.
4	Aging and longevity: epidemiology of aging, theories of aging, stem cells, autophagy, biological and chronological age.
4	Aging and related diseases: Alzheimer and Atherosclerosis
2	Hemodynamic changes, embolic thrombus disease, shock.
Hrs	Workshops
6	Applications in laboratory diagnostics of antigen-antibody reaction.
6	Applications of molecular biology in clinical diagnostics

MODULE NEUROLOGY

Prof. VINCENZO LA BELLA

SUGGESTED BIBLIOGRAPHY

Dispense, reviews, scientific papers, fornire dal Docente

libri: Hendelman WJ, Humpheys P, Skinner C: The integrated Nervous System. A systematic diagnostic approach. CRC Press

Shapira AHV: Neurology and Clinical Neurosciences. Mosby Elsevier

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

EDUCATIONAL OBJECTIVES OF THE MODULE

The training goal of Neurology Course is to provide students with theoretical tools for i) understanding of the neurological diseases; (ii) Identification of the etiopathological pathways involved in the neurological disorders, the etiological theories, and the biological basis for the therapy. It will be emphasized on the topics related to the biological mechanisms that determine the various diseases of the nervous system. The student will learn how to apply practically acquired knowledge.

SYLLABUS

Hrs	Frontal teaching
2	Opening Lecture. The clinical history in neurology. The clinical method in neurology. The main neurological disorders. Major neurological syndromes (eg, pyramidal, extrapyramidal, ataxia, spinal cord syndromes, somatosensory deficits)
2	Higher nervous functions. The memory. Disorders of consciousness. The locked-in syndrome. Basics of neurological examination. Biological and antibody diagnostic workup. Instrumental work-up (EMG / ENG, Evoked Potentials, EEG, TC, RMN, PET, SPECT, special investigations)
2	Stroke and Cerebrovascular diseases. Extrapyramidal Disorders I (Parkinson's Disease and parkinson-plus diseases). Synucleinopathies
2	Extrapyramidal Disorders II: non parkinsonian movement disorders: dyskinesias, dystonias, tics, myoclonus, restless leg syndrome; Huntington's disease; syndrome of Gilles de la Tourette*
2	Neuromuscular disorders I: motor neuron diseases
2	Neuromuscular disorders II: myasthenia syndromes, muscular diseases, neuropathies
2	Demyelinating Diseases and Multiple Sclerosis. Autoimmune encephalitis. Paraneoplastic syndrome
2	Neurogenetic diseases: dominant and recessive hereditary ataxias. Hereditary spastic paraparesis; The genetic counselling and workup in Neurology
2	Epilepsy. Sleep disorders
2	Dementia : mild cognitive impairment and Alzheimer's Disease; Frontotemporal degeneration and Dementia – Tauopathies - Lewy's Dementia and Cognitive Disorders in Extrapyramidal Diseases
2	Biology of the malformative diseases of Nervous System Disorders and neural tube defects
2	Prion encephalopathies

MODULE NEUROPHARMACOLOGY

Prof.ssa CARLA CANNIZZARO

SUGGESTED BIBLIOGRAPHY

Waller. Medical Pharmacology and Therapeutics. Elsevier Saunders

AMBIT	50505-Discipline del settore biomedico
INDIVIDUAL STUDY (Hrs)	85
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The goal of this course is to understand the composition, properties, and actions of drugs employed in the pharmacological treatment of neurological disorders.

SYLLABUS

Hrs	Frontal teaching
2	Principles of pharmacology. Pharmacokinetics: the dynamics of drug absorption, distribution, metabolism, and elimination.
4	Pharmacodynamics: molecular mechanisms of drug action. Drug discovery, safety and efficacy. Membrane Transporters and Drug Response
2	Agonist, antagonist of muscarinic receptor and anticholinergic agents.
4	Adrenergic agonists and antagonists. 5-Hydroxytryptamine and Dopamine.
2	Neurotransmission and Central Nervous System.
4	Anxiolytic, sedatives and hypnotics. Z-compounds.
4	The major psychotic disorders: schizophrenia and mania.
2	Depression, attention deficit hyperactivity disorders and narcolepsy.
2	Epilepsy
2	Extrapiramidal movement disorders and spasticity
2	Opioids, analgesia and pain management.
2	General and local anesthetics
4	Anti-inflammatory, antipyretic, and analgesic agents. Pharmacological treatment of Alzheimer disease, multiple sclerosis.
4	Substance of abuse and dependence. Brain reward pathways. Initial actions of drugs of abuse. Molecular and cellular mechanisms of addiction. Treatment of addiction.