UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2023/2024
BACHELOR'S DEGREE (BSC)	NEUROPHYSIOPATHOLOGY TECHNIQUES
INTEGRATED COURSE	NEUROLOGY, PRINCIPLES AND TECHNIQUES OF ELECTROENCEPHALOGRAPHY - INTEGRATED COURSE
CODE	22327
MODULES	Yes
NUMBER OF MODULES	3
SCIENTIFIC SECTOR(S)	MED/48, MED/26
HEAD PROFESSOR(S)	MONASTERO ROBERTO Professore Associato Univ. di PALERMO
OTHER PROFESSOR(S)	MONASTERO ROBERTO Professore Associato Univ. di PALERMO GANGITANO MASSIMO Ricercatore Univ. di PALERMO
CREDITS	7
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**GANGITANO MASSIMO** Wednesday 15:00 17:00 via del Vespro 129 **MONASTERO ROBERTO** Wednesday 13:00 14:00 BioNeC, via G. La Loggia 1, Complesso didattico “Aula Rubino” , al termine delle lezioni di Neurologia

DOCENTE: Prof. ROBERTO MONASTERO

PREREQUISITES	In order to understand the contents and learning objectives of the course, the student must possess knowledge of the anatomo-physiological fundamentals of the CNS and peripheral, neurotransmitter mechanisms underlying major neurological diseases, neurophysiological concepts underlying electroencephalography, recognizing the main electrophysiological patterns of epilepsies and neurological diseases.
LEARNING OUTCOMES	Knowledge and understanding skills Acquisition of knowledge and comprehension skills related to the anatomo-physiological principles of the main neurological processes and higher cognitive functions, disorders of neurological relevance to juvenile and adult-elderly age, the technological basis of EEG recording, the fundamentals of basic and pathological EEG in epilepsy and the main neurological diseases, and the therapeutic strategies of the main neurological diseases with special interest in epilepsy. In addition, the integrated course aims to develop in the student knowledge of the diagnostic pathways and differential diagnosis of major neurological syndromes and specific EEG patterns related to these diseases. Ability to apply knowledge and understanding Recognition of major neurological diseases and EEG-graphic patterns, diagnostic framing, clinical evaluation and identification of therapeutic possibilities suitable for the treatment of neurological disorders and in particular, epilepsies Autonomy of judgment Development of the ability to recognize the main pathological pictures of neurological diseases and related EEG patterns and adequate autonomy of judgment in relation to neurological and EEG-graphic diagnosis and choice of related therapeutic treatments. Communication skills Understand the meaning of verbal and nonverbal communication and be able to clearly communicate knowledge about acquired neurological diseases. Learning skills Acquisition of skills that enable good use of the knowledge learned to navigate the field of understanding and recognition of major neurological diseases with related EEG patterns, in order to be able to continue to further these studies as part of continuing education and training.
ASSESSMENT METHODS	Oral test. The test aims to assess that the student possesses knowledge and understanding of the topics of the integrated course program, autonomy of judgment, ability to apply the acquired knowledge, specific disciplinary language. Minimum number of questions: the student will have to answer a minimum of three questions, asked orally, covering all the topics of the integrated course program, with reference to the recommended texts. ORAL ASSESSMENT AND ITS CRITERIA The evaluation of the test is in thirtieths, as follows. - Grade: 30 - 30 cum laude - Assessment: Excellent - ECTS grades: Excellent (A - / A+) Outcome: Excellent knowledge of teaching content. Student demonstrates high analytical-synthetic ability and is able to apply knowledge to solve problems of high complexity. - Grade: 27 - 29 - Assessment: Very well - ECTS grades: Very good (B) Outcome: Excellent knowledge of teaching content and very good command of language. Student demonstrates analytical-synthetic skills and able to apply knowledge to solve problems of medium and, in some cases, high complexity. - Grade: 24 - 26 - Rating: Good - ECTS grades: Good (C) Outcome: Good knowledge of teaching content and good ownership of language. The student is able to apply knowledge to solve problems of medium complexity. - Grade: 21 - 23 - Rating: Fair - ECTS grades: Satisfactory (D) Outcome: Fair knowledge of teaching content, in some cases limited to main topics. Acceptable ability to use discipline-specific language and to apply acquired knowledge independently. - Grade: 18 - 20 - Assessment: Sufficient - ECTS grades: Sufficient (E) Outcome: Minimal knowledge of teaching content, often limited to main topics. Modest ability to use discipline-specific language and independently apply acquired knowledge. - Grade: 1 - 17 - Assessment: Insufficient - ECTS grades: Fail (F). Outcome: Does not possess acceptable knowledge of the main content of teaching. Very little or no ability to use discipline-specific language and independently apply acquired knowledge. Exam failed.
TEACHING METHODS	

	Lectures with the support of ppt slides. Mid-course assessment test (with administration of multiple-choice questionnaires and small essays. This activity is used to assess students' intermediate learning in order, if necessary, to retake topics not well learned).

MODULE **EEG RECORDING TECHNIQUES**	
SUGGESTED BIBLIOGRAPHY	
materiale didattico fornito dai docenti	
AMBIT	10343-Scienze e tecniche di neurofisiopatologia
INDIVIDUAL STUDY (Hrs)	45
COURSE ACTIVITY (Hrs)	30
EDUCATIONAL OBJECTIVES OF THE MODULE	
acquire the knowledge on the electroencephalographic technique from the functioning of the electroencephalograph to the procedures of recording, analysis and writing of technical EEG record.	

SYLLABUS

Hrs	Frontal teaching
4	basic knowledge on EEG machine
3	Patient preparation to EEG recording
3	EEG electrodes: types, function, impedance, application
3	electrode montages
3	Recording parameters for EEG signal: amplification filters, impedance check
3	Baseline EEG recording and activation tests
4	artifacts: typology, identification, correction, reporting
4	Patient management and EEG monitoring during recording:
3	Evaluation of the EEG recording and writing of technical report

MODULE
ELECTROENCEPHALOGRAPHY

Prof. MASSIMO GANGITANO

SUGGESTED BIBLIOGRAPHY

Mecarelli O., Manuale teorico pratico di elettroencefalografia. Wolters Kluwer Health, Milano 2009. ISBN: 978-88-7556-427-8
https://www.libreriauniversitaria.it/manuale-teorico-pratico-elettroencefalografia-mecarelli/libro/9788875564278

AMBIT	10343-Scienze e tecniche di neurofisiopatologia
INDIVIDUAL STUDY (Hrs)	30
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

The aim of the teaching course is: 1) to acquire the knowledge of electroencephalography (EEG) and recording techniques; 2) to recognize the characteristics of the physiological EEG in basal conditions and during the various activation methods; 3) to acquire the technical knowledge on electrodes positionig and type of electrodes ; 4) to learn the neurophysiological basis of the EEG and of the recording methods; 5) to learn the knowledge on the EEG reporting methods, its indications and the diagnostic value in the main pathologies of the Central Nervous System

SYLLABUS

Hrs	Frontal teaching
2	Origin of the electroencephalographic signal
4	Signal recording and analysis techniques
2	Normal adult EEG, in wakefulness and sleep
2	Clinical applications of the EEG
2	Epileptiform and critical EEGraphic anomalies; role of EEG investigations (routine, video-EEG, other EEG-related techniques) in the diagnosis of epileptic disorders
2	EEGgraphic anomalies of amplitude, localized and generalized. The electrical silence of the brain and the diagnosis of brain death
2	Epileptic seizures, epilepsies, states of epileptic disease: definitions, epidemiology, nosography (classification of seizures and epilepsies), etiology, diagnosis (clinical, neurophysiological, neuroradiological), therapy (pharmacological and surgical)
2	Non-epileptic critical manifestations, with particular reference to syncopes (cardiogenic and neuro-mediated) and psychogenic crises.
2	Deviations from the norm of normal EEG patterns; paraphysiological EEG pictures

MODULE
NEUROLOGY

Prof. ROBERTO MONASTERO

SUGGESTED BIBLIOGRAPHY

LIBRI per APPROFONDIMENTO
- A. Berardelli, G. Cruccu: La neurologia della Sapienza, Società Editrice Esculapio, 2019 (ISBN 9788834184493)
- C. Ferrarese: Core Curriculum: Malattie del Sistema Nervoso, II edizione, McGraw Hill, 2016 (ISBN 8838639892)
- A. Federico, C. Caltagirone, L. Provinciali, G. Tedeschi: Neurologia Pratica, EdiSES, 2014 (ISBN 8879598317)
- P. Barone, U. Bonuccelli: Neurologia Clinica. Per Studenti e Medici di Medicina Generale, EDIZIONI Idelson Gnocchi, 2021 (ISBN: 9788879477529)

LIBRI PER LE PROFESSIONI SANITARIE
- di A. Padovani, B. Borroni, M. S. Cotelli: Neurologia per le professioni sanitarie, Piccin, 2017 (EAN 9788829928316)
- P. Bertora: Neurologia per i corsi di laurea in professioni sanitarie, Piccin, 2015 (ISBN 9788829927449)
- A. Federico, C. Angelini, P. Franza: Neurologia e assistenza infermieristica. Manuale per professioni sanitarie, EdiSES, 2014 (ISBN 9788879598576)

Insieme ai libri sopra descritti, utilizzare il Materiale didattico (dispense, fotocopie, articoli scientifici e set di diapositive) preparato dal docente del modulo.

AMBIT	10343-Scienze e tecniche di neurofisiopatologia
INDIVIDUAL STUDY (Hrs)	30
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

Knowledge acquisition regarding major neurological diseases/disorders, with particular attention to neuropsychiatric diseases with mixed pathology, including concepts re rehabilitation. The basic principles of neuroanatomy and neurophysiology of the central nervous system are included.

SYLLABUS

Hrs	Frontal teaching
2	Anatomy of clinical neurology. Major neurological syndromes
2	Cerebrovascular disease
2	Neurodegenerative disease and Parkinson's disease
2	Higher cognitive functions. Dementia and mild cognitive impairment
2	Epilepsy
2	Primary headaches
2	Demyelinating disease
2	Motor neuron diseases. Muscle diseases and Myasthenia gravis
2	Diseases of the spinal cord. Peripheral neuropathies

Hrs	Practice
2	Mid-course evaluation test (1 meeting of 3.0 hours; for this purpose, multiple-choice questionnaires will be administered and titles for small essays will be suggested. This activity serves to assess students' intermediate learning in order, if necessary, to resume topics not well learned).