

Testi del Syllabus

Resp. Did.	CESCA FABRIZIA	Matricola: 031484
Docenti	CESCA FABRIZIA, 3 CFU LEGNAME GIUSEPPE, 3 CFU MANGANOTTI PAOLO, 2 CFU SARTORI ARIANNA, 1 CFU	
Anno offerta:	2023/2024	
Insegnamento:	970SV - NEUROPATHOLOGY	
Corso di studio:	SM75 - NEUROSCIENCE	
Anno regolamento:	2023	
CFU:	9	
Settore:	BIO/09	
Tipo Attività:	B - Caratterizzante	
Anno corso:	1	
Periodo:	Secondo Semestre	
Sede:	TRIESTE	



Testi in italiano

Lingua insegnamento	English
Contenuti (Dipl.Sup.)	<p>The Neuropathology course combines core teaching of fundamental aspects of major neuropathological diseases, with emphasis on the cellular and molecular causes of neurodegeneration and their clinical presentation, and on the role of glial cells in neurodegenerative pathologies and disorders of cognition. The course will also address how hypotheses can be tested in relevant model systems and used to develop novel therapeutic strategies. The course contents will be organized in three modules, as follows:</p> <p>Astroglia Neuropathology, Prof. F. Cesca, 3 CFU Molecular Neuropathology, Prof. G. Legname, 3 CFU Clinical Neuropathology, Prof. P. Manganotti, 3 CFU</p>
Testi di riferimento	<p>Verkhatsky A. and Butt A. 'Glial Physiology and Pathophysiology', Wiley-Blackwell, ISBN: 978-0-470-97853-5 (2013)</p> <p>Kandel E.R et al., Principles of Neural Science, 5th Edition McGraw Hill Medical.</p> <p>Aminoff MJ. Neurology and General Medicine, Churchill and Livingstone, 7 Ed.</p> <p>Favale e Loeb: Neurologia di Fazio - Loeb Ropper e Brown: Neurology Angelini-Battistin: Neurologia Clinica Victor e Adams: Principi di Neurologia Wilkinson-Lennox: Essential Neurology -Blackweel Publishing</p> <p>CD, articoli e review su specifici argomenti verranno forniti durante le lezioni. Verrà fornito anche il materiale (es. diapositive) utilizzato durante</p>

il corso.

Obiettivi formativi

1 CONOSCENZA E CAPACITÀ DI COMPrensIONE della fisiopatologia, dei meccanismi etiopatogenici, delle sdr neurologiche

2. CONOSCENZA E CAPACITÀ DI COMPrensIONE APPLICATE: applicare le conoscenze descrivendo i meccanismi multisistemici neurologici.

3 AUTONOMIA DI GIUDIZIO: applicazione autonoma di elementi di giudizio clinico; Ragionamento clinico autonomo, per casi semplici; in logopedia

4. ABILITÀ COMUNICATIVE

acquisire capacità comunicative di diagnosi e utilizzo di lessico appropriato al contesto patologico;

5. CAPACITÀ DI APPRENDERE: acquisizione di memoria implicita di schemi procedurali per esame neurologico elementare in logopedia

Vengono quindi rispettati i descrittori di Dublino

Prerequisiti

Basic knowledge in subjects such as chemistry, biochemistry, anatomy and physiology is required.

Metodi didattici

Frontal lessons and lectures, open discussion, diagnostic videos and tutorials.

Altre informazioni

The material used during the lessons will be made available through the moodle and/or teams platforms.

Any necessary change in the course modalities due to COVID19 emergency will be published in the Department, Master Programme and course websites.

Modalità di verifica dell'apprendimento

L'esame finale consiste in domande aperte sul materiale d'esame e ragionamento clinico; sugli argomenti neurologici discussi nelle lezioni frontali con la possibilità di ragionare sulla clinica e stimolando sulle capacità razionali dello studente; non sono previste prove in itinere; esame finale orale con voto in trentesimi.

La valutazione finale adottata è la seguente:

- Eccellente (30 - 30 e lode): ottima conoscenza degli argomenti, ottima proprietà di linguaggio, ottima capacità analitica; lo/la studente/essa è in grado di applicare brillantemente le conoscenze teoriche a casi concreti.

- Molto buono (27 - 29): buona conoscenza degli argomenti, notevole proprietà di linguaggio, buona capacità analitica; lo/la studente/essa è in grado di applicare correttamente le conoscenze teoriche a casi concreti.

- Buono (24-26): buona conoscenza dei principali argomenti, discreta proprietà di linguaggio; lo/la studente/essa mostra una adeguata capacità di applicare le conoscenze teoriche a casi concreti.

- Soddisfacente (21-23): lo/la studente/essa non mostra piena padronanza degli argomenti principali dell'insegnamento,; mostra comunque soddisfacente proprietà di linguaggio e sufficiente capacità di applicare le conoscenze teoriche

- Sufficiente (18-20): minima conoscenza degli argomenti principali dell'insegnamento e del

linguaggio tecnico, limitata capacità di applicare in modo adeguato le conoscenze teoriche a casi concreti.

- Insufficiente: lo/la studente/essa non possiede una conoscenza accettabile dei contenuti dei diversi argomenti del programma.

Programma esteso

Astroglial Neuropathology (Prof. F. Cesca):

1. Astroglia Physiology: introduction, definition, classification, evolution. Ion channels and ionic signaling, neurotransmitter receptors, membrane transporters. Astrocytes and neuronal metabolism. Astrocytes and oxidative stress. Gliotransmission.

2. Astroglia Pathophysiology: reactive astrogliosis, astroglia degeneration, pathological remodeling of astrocytes. How to culture rodent astrocytes. A1/A2 activated astrocytes. Glial scar. Alexander disease: cellular and molecular features. Epilepsy: contribution of astrocytes to the pathology. Huntington's disease: contribution of astrocytes to the pathology.

3. Astrocytes and Cognition. Improved in vivo calcium imaging techniques. Astrocytes and synaptic transmission. Astrocyte activation and neural circuit activity. Multiscale spatiotemporal integration of astrocytes with synaptic and neuronal networks.

4. Astrocytes and Disorders of Cognition. Humanized mice: applications for glial pathophysiology. Possible implications of astrocytes in cognitive disorders. Contribution of astrocytes to Rett syndrome and of the role of astrocytes in major depression disorder.

Molecular Neuropathology (prof. G. Legname): Molecular mechanisms in neurodegeneration; Prion diseases; Prion-like events in major neurodegenerative diseases; Proteinopathies; Protein changes in physiological and pathological conditions: Prion protein, alpha-synuclein and Lewy bodies, TDP-43, Beta-amyloid, Tau protein; Alzheimer's Disease; Parkinson's Disease; Creutzfeldt-Jakob Disease, Multiple Sclerosis; Bovine Spongiform Encephalopathy; Drug screening. The course covers all major aspects at the molecular level of neurodegenerative diseases. Students should have a strong background in biochemistry and molecular biology.

Clinical Neuropathology (Prof. P. Manganotti): 1. Brain tumors; 2. Inflammation and neurological condition, MS; 3. Vascular dementia and Alzheimer's disease; 4. Cranial neuralgias, pain and headache. Distinction between cephalgia and migraine; 5. Trigeminal neuralgias and facial palsy; 6. Coma, vegetative status and brain death; 7. cranial traumatic lesions; 8. Parkinson's disease and movement disorders; 9. Epilepsy; 10. Cerebrovascular diseases; 11. Peripheral neuropathies; 12. ALS and neurodegenerative disorders; 13. Clinical Neurophysiology.

Obiettivi Agenda 2030 per lo sviluppo sostenibile

This course explores topics closely related to one or more goals of the United Nations 2030 Agenda for Sustainable Development (SDGs). Specifically,
N.3 Health and wellbeing
N.4 Education of quality

Obiettivi per lo sviluppo sostenibile

Codice	Descrizione
3	Salute e benessere
4	Istruzione di qualità



Testi in inglese

English

The Neuropathology course combines core teaching of fundamental aspects of major neuropathological diseases, with emphasis on the cellular and molecular causes of neurodegeneration and their clinical presentation, and on the role of glial cells in neurodegenerative pathologies and disorders of cognition. The course will also address how hypotheses can be tested in relevant model systems and used to develop novel therapeutic strategies. The course contents will be organized in three modules, as follows:

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Molecular Neuropathology, Prof. G. Legname, 3 CFU
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Ropper e Brown: Neurology

Angelini-Battistin: Neurologia Clinica

Victor e Adams: Principi di Neurologia

Wilkinson-Lennox: Essential Neurology -Blackweel Publishing

CDs, scientific articles and reviews on specific topics will be provided during classes.

Slides and other material used during lessons will also be provided.

1 KNOWLEDGE AN COMPRHESION To understandingof fisiopathology and etiopathogenesis of different neurological conditions;

2 KNOWLEDGE AN COMPRHESION IN applying knowledge and understanding of mechanisms of neurological conditions in a common clinical context

3. CLINICAL CRITICAL JUDGEMENT

Make independent critical judgment in clinical simple context or in single clinical cases in lopedy

4.COMUNICATION SKILLS

Performing good communication skills and acquiring the ability of a correct lexical choice.

5. LEARNING SKILL

Learning skill of automatic procedure (elementary neurological examination) in logopedy.

Are therefore represented the Dublin descriptors f

1.Knowledge and understanding: main brain pathologies starting from basic neurophysiological up to cellular and animal models arriving to clinical context, focusing on both the neuronal and glial contribution to the onset and development of the various diseases;

2. Applying knowledge and understanding: the students should be able to understand and implement experimental strategies in order to investigate specific mechanisms of different pathologies. Autonomous clinical reasoning for simple cases;

3. Making judgments: the students should be able to develop critical capacities to read and understand or criticize scientific papers, to organize and implement strategies to obtain or critically analyze scientific data;

4. Communication skills: students should be able to employ technical language, in order to write with appropriate supervision a scientific paper or organize a scientific oral communication. They will also acquire diagnostic communication skills and the use of vocabulary appropriate to the pathological context and will learn procedural schemes for elementary neurological examinations;

5. Learning skills: students should be able to organize, implement and carry on a scientific knowledge, in order to begin an experiment and with appropriate supervision begin their steps in lab experimental sessions.

Basic knowledge in subjects such as chemistry, biochemistry, anatomy and physiology is required.

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the final examination will concern open questions on the neurological topics discussed in frontal lessons, giving the opportunity to examine the clinical reasoning abstract capacities of the fellow; we will not proceed with preliminary or intercurrent tests; the final examination will be an oral exam, with a final score expressed /30;

The final evaluation will consist in:

- Excellent (30 and 30 with laude): optimal knowledge of the topics and optimal language and interpretation, optimal analytic capacity; the student is able to correctly apply the knowledge in clinical cases.

- Very good (27 - 29): good knowledge of the topics, good language, good analytic capacity; able to apply the theory to the practice.

- Good (24-26): good knowledge of the topics, appropriate language, sufficient capacity to apply the concepts to the clinical practice.

- More than Sufficient (21 - 23): the student is not completely expert on the topic, although he knows the fundamental theoretical concepts

- Sufficient (18-20): minimal knowledge of the topic and limited capacity to apply it to clinical cases.

- Insufficient: the student is not able to discuss the fundamentals of the topic in different chapters of program

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Obiettivi per lo sviluppo sostenibile

Codice	Descrizione
3	Good health and well-being
4	Quality education