

CdS Medicine and Surgery

5th year (1st semester)
A.Y. 2026-27

	COD:	Scientific Field	Neurological Sciences	TUTOR - Docente	ECTS -CFU
		Modules			
COORDINATOR- Coordinatore: Prof Alessandro Stefani	MED/12A	Neurology		Alessandro Stefani	1
	MED/12A	Neurology		Girolama Alessandra Marfia	1
	MED/12A	Neurology		Tommaso Schirinzi	1
	MED/12A	Neurology		Doriana Landi	1
	MED/27	Neurosurgery		Mario Francesco Fraioli	1
				TOT	5

SPECIFIC AIMS :

OBIETTIVI FORMATIVI:

EN: We propose an adjourned vision of neurological sciences, which integrates translational research opportunities into clinical diagnosis. In many respects, neurological disease are facing a rapid re-juvination, due to the availability of modern radiology and molecular tools. For instance, several neurodegenerative fields encounter a profound change in light of utilizable and developing biomarkers. The contribution of genetics also impacts the classification and knowledge of different peripheral and neuromuscular diseases. Hence, this course, together with the knowledge of the main neurological and neurosurgical diseases, will provide skills in order to acquire the basic semeiotics; to get confidence on instrumental diagnostic tools (CSF analysy, neurophysiological examinations, imaging interpretation);to obtain the essential rudiments for understanding the role of genetics and molecular biology.In addition, we will provided seminars on timing issues and updated discoveries (on plasticity and brain networking). Non secondarily, a modern vision on main neurosurgery domain is integrated to the course (i.e., biology of gliomas, approach to NIH, functional neurosurgery).

IT: Proponiamo una visione aggiornata delle scienze neurologiche, che integri le opportunità della ricerca traslazionale nella diagnosi clinica. Per molti aspetti, le malattie neurologiche stanno vivendo un rapido rinnovamento, grazie alla disponibilità di strumenti radiologici e molecolari moderni. Ad esempio, diversi campi delle malattie neurodegenerative stanno subendo un profondo cambiamento alla luce dei biomarcatori utilizzabili e in via di sviluppo. Anche il contributo della genetica ha un impatto sulla classificazione e sulla conoscenza di diverse malattie periferiche e neuromuscolari. Pertanto, questo corso, insieme alla

conoscenza delle principali malattie neurologiche (al fine di identificare e guidare le scelte terapeutiche), fornirà le competenze necessarie per: acquisire le basi della semiotica neurologica; acquisire sicurezza negli elementi diagnostici strumentali e biochimici (analisi del liquido cerebrospinale; interpretazione delle immagini, indagini neurofisiologiche); ottenere i rudimenti essenziali per comprendere il ruolo della genetica e della biologia molecolare nelle malattie neurologiche. Inoltre, offriremo seminari aggiornati su temi di stringente attualità (plasticità sinaptica, network). Non secondariamente, una visione moderna dei principali ambiti neurochirurgici è parte integrante di questo corso (ad esempio, biologia dei gliomi, approcci moderni al NIH, neurochirurgia funzionale).

PROGRAM - PROGRAMMA

EN: At the end of the Neurology course, any candidate will acquire competence around the main neurological diseases, including: epilepsy; headache; stroke; neuro-inflammatory diseases including multiple sclerosis; infections of the nervous system; spinal cord diseases; diseases of the cerebellum, including ataxias; Parkinson's and Parkinsonisms; dementias; dystonia; myasthenia; muscular dystrophies and other myopathies; diseases of the motor neuron; inflammatory metabolic, toxic and hereditary mono- and poly-neuropathies; headaches / migraines; sleep disorders; alterations of consciousness, syncope, coma, brain death. In addition, full examination of the main fields of Neurosurgery (myelopathies, neoplasms, surgical treatment of hemorrhages, DBS).

Module/o Neurology

IT: Al termine del corso di Neurologia, ogni candidato acquisirà competenza sulle principali patologie neurologiche, tra cui: epilessia; cefalea; ictus; malattie neuroinfiammatorie, inclusa la sclerosi multipla; infezioni del sistema nervoso; malattie del midollo spinale; malattie del cervelletto, incluse atassie; morbo di Parkinson e parkinsonismi; demenze; distonia; miastenia; distrofie muscolari e altre miopatie; malattie del motoneurone; mono- e polineuropatie infiammatorie metaboliche, tossiche ed ereditarie; cefalea/emicrania; disturbi del sonno; alterazioni della coscienza, sincope, coma, morte cerebrale. Inoltre, è previsto un esame completo dei principali campi della Neurochirurgia (mielopatie, neoplasie, trattamento chirurgico delle emorragie, DBS).

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**PROGRAM-
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EN: Cranial Neurosurgery: Treatment of brain tumors, aneurysms, vascular malformations, and hydrocephalus. Spinal and Vertebral Surgery: Surgery for herniated discs, spinal stenosis, vertebral tumors, and spinal trauma. Functional and Stereotactic Neurosurgery: Surgery for epilepsy, Parkinson's disease, and laser ablative procedures (LITT). Neurotraumatology: Management of acute head and spinal trauma

Modulo Neurosurgery

IT: Neurochirurgia Cranica: Trattamento di tumori cerebrali (meningiomi, neurinomi, glioma), aneurismi, malformazioni vascolari e idrocefalo. Chirurgia Spinale e Vertebrale: Interventi su ernie discali, stenosi spinali, tumori vertebrali e traumi della colonna. Neurochirurgia Funzionale e Stereotassica: Interventi per epilessia, morbo di Parkinson e procedure ablative laser (LITT). Neuro-traumatologia: Gestione di traumi cranici e spinali acuti.

TEXTBOOKS

EN: Updated neurology tests such as the Bergamini (ed. Universo); or the Neurology of Cambier et al. Optional: Principles of Neural Sciences, Kandel et al. However, the key concept is that the training of the medical students will also benefit from the material provided by the teacher. Prof Stefani. Together with Proff Marfia, Schirinzi and Landi will solicit and provide insights with numerous references to modern updated reviews or videos easily accessible on the web; this permits the sharing of neurological semeiotics in a more effective manner, which represents a crucial knowledge necessary for any specialist (with particular reference to those who will work in the emergency room and / or emergency services (including, in particular, neurosurgery demands)

TESTI DI RIFERIMENTO	<p>IT: Test neurologici aggiornati come quelli di Bergamini (ed. Universo); o la Neurologia di Cambier et al. Opzionale: Principi di Neuroscienze, Kandel et al. Tuttavia, il concetto chiave è che anche la formazione degli studenti di medicina trarrà beneficio dal materiale fornito dal docente. Il Prof. Stefani, coadiuvato dai Proff Marfia, Schirinzi e Landi, solleciterà e fornirà spunti con numerosi riferimenti a revisioni o video moderni e aggiornati facilmente accessibili sul web; ciò consentirà la condivisione della semeiotica neurologica in modo più efficace, che rappresenta una conoscenza cruciale necessaria per qualsiasi specialista (con particolare riferimento a coloro che lavoreranno in pronto soccorso e/o servizi di emergenza (incluse, in particolare, le esigenze neurochirurgiche).</p>
TEACHING METHODS	<p>EN: The course is composed by lectures, divided between 4CFU in neurology and 1CFU in neurosurgery. Teachers make use of teaching tools such as slides with explanatory diagrams, illustrations and images. Films and animations will be used to integrate the processes described in class. Interactive tests will be organized. Attendance is compulsory (not less than 70%). At the end of Neurology course, students might be asked (depending upon concertation with students themselves) to complete a written text, with the aim to disclose the main arguments of the future examinations (hence, helping the awareness of each student's preparation).</p>
METODI DIDATTICI	<p>IT: L'insegnamento si articola in lezioni frontali, divise tra 4CFU di neurologia e 1CFU di neurochirurgia. I docenti si avvalgono di strumenti didattici quali presentazioni organizzate in diapositive con diagrammi esplicativi, illustrazioni e immagini. Filmati ed animazioni verranno utilizzati per integrazione dei processi descritti in classe. Saranno organizzate prove interattive. La frequenza è obbligatoria. Potrebbe venir fornito anche un test scritto (ma soggetto a concertazione con gli studenti stessi), che non comporta idoneità, ma che fornirà una chiave trasparente per comprendere i temi centrali della preparazione acquisita.</p>
EXAM METHODS	<p>EN: it is required a good performance in the oral exam (during which we explore the ability to gather and organize knowledge; critical thinking skills; quality of exposure, competence in the use of specialized vocabulary, effectiveness, linearity). The vote will be expressed out of thirty.</p>
MODALITA' DI VALUTAZIONE	<p>IT: È richiesta una buona prestazione nella prova orale (durante la quale si valutano la capacità di raccogliere e organizzare le conoscenze, le capacità di pensiero critico, la qualità dell'esposizione, la competenza nell'uso del vocabolario specialistico, l'efficacia e la linearità). Il voto sarà espresso su trenta.</p>

EXAM COMMISSION

EN: Exam commission will include the Coordinator or Prof Marfia, plus at least one of the other tutors

IT: La commissione di esame sarà diretta dal Coordinatore Stefani o dalla Prof.ssa Marfia, associati ad almeno uno degli altri docenti

CONTACTS-CONTATTI

Professor	email	tel
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Tommaso Schirinzi	t.schirinzi@yahoo.com	NA
Doriana Landi	doriana.landi@gmail.com	NA
Mario Francesco Fraioli	mff77@libero.it	NA

PREREQUISITES-PREREQUISITI

EN:

It is considered as granted that the student has already acquired the basic notions on Neuroanatomy and Neurophysiology

IT:

Si dà per scontato che lo studente abbia già acquisito le nozioni di base di neuroanatomia e neurofisiologia

The specific learning outcomes of the program are coherent with the general provisions of the Bologna Process and the specific provisions of EC Directive 2005/36/EC. They lie within the European Qualifications Framework (Dublin Descriptors) as follows:

1. Knowledge and Understanding

- Assess the physiologic principles which govern the function of the lymphoematopoietic and immune systems and the alterations induced by functional and structural abnormalities.
- Highlight the main aspects of hematologic, rheumatologic, allergic and infectious disorders focusing on the etiopathogenesis, diagnosis and therapy.
- Recognize the risk factors, populations at risk, relieving or exacerbating factors for any specific clinical case.
- Demonstrate knowledge about established and evolving medicine that is critical to the practice of the clinical and surgical interventions.
- Determine the major indications or contraindications for both medical and surgical therapeutic strategies.
- Identify the incidence and epidemiology of infectious diseases in order to understand their impact worldwide as well as in most affected countries.
- Recognize the importance of preventive medicine and emphasize the role of early intervention.
- Analyze a clinical case and provide an exhaustive explanation of the possible diagnostic hypothesis and appropriate therapeutic approaches.

2. Applying Knowledge and Understanding

- Apply the theoretical knowledge to the clinical setting, being able to recognize the general diagnostic aspects of the diseases.
- Evaluate the patient, emphasizing the findings obtained from the history, physical examination, and instrumental tests. If the mechanisms underlying these findings can be identified, the correct etiologic, anatomic, and physiologic diagnoses can usually be deduced.
- Predict a differential diagnosis based on given clinical data and provide suitable explanations of the underlying reasonings.
- Learn to interpret appropriate epidemiologic, laboratory and diagnostic studies.
- Learn the practical aspects of the investigation tests and how to perform them.

3. Making Judgements

- Recognize the importance of an in-depth knowledge of the topics consistent with a proper medical education.
- Identify the benefits and adverse effects of any diagnostic and therapeutic interventions.

4. Communication Skills

- Present the topics orally in an organized and consistent manner.
- Use of proper scientific language coherent with the topic of discussion.

5. **Learning Skills**

- Identify the possible use of the acknowledged skills in the future career.
- Assess the importance of the acquired knowledge in the overall medical education process.