University of Rijeka, Faculty of Medicine

Curriculum
2023/2024

Compulsory course

Neuroanatomy

Study program:	**Medical Studies in English (R)**
[Razina studija]:	**Integrirani prijediplomski i diplomski sveučilišni studiji**
Department:	**Zavod za anatomiju**
Course coordinator:	**prof. dr. sc. Cvijanović Peloza Olga, dr. med.**
Year of study:	**2**
ECTS:	**3.00**
Incentive ECTS:	**0.00 (0.00%)**
Foreign language:	**No**

Course information:

Neuroanatomy is a compulsory course of the second year (3rd semester) of Integrated Undergraduate and Graduate University Study of Medicine in English. It is consisted of 16 hours of lectures, 12 hours of seminars and 12 hours of practicles, a total of 40 hours (3 ECTS).

The course objective is to acquire knowledge about the organization and the structure of gray and white matter within the central nervous system. Except the latter, the goal of the course is to teach students how nerve impulses are transferred from the central nervous system to the target organ and vice versa. Students will also acquire knowledge of the inner ear, sensory areas that are located there and about retina of the eye bulb.

Course content: Arrangement and functional organization of the gray and the white matter of the spinal cord; an overview of arrangement and functional organization of the gray and the white matter of the brain stem; arrangement and functional organization of the grey and white matter of the cerebellum; an overview of the diencephalon nuclei; pituitary and neurosectional systems; telecephalon (telencephalon medium, hemisphere, rhinencephalon); arrangement and functional organization of the gray and the white matter of the telecephalon; limbic system; reflex arc; non specific sensory pathways; specific sensory pathways; motor pathways; reticular formation; an autonomic nervous system (basic principle of structure and function), the sympathetic part of the autonomic nervous system; the parasympathetic part of the autonomic nervous system; inner layer of the eye bulb (retina); inner ear.

List of assigned reading:

Friedrich Paulsen Tobias M. Böckers Jens Waschke. Sobotta Anatomy Textbook1st Edition. Urban & Fischer 2019

List of optional reading:

Alan R Crossman, David Neary. Neuroanatomy 5th edition. Churchil Livingstone, 2015. Werner Kahle, Michael Frotscher. Colored Atlas of Human Anatomy. Nervous System and Sensory Organs. Thieme, 6th Edition.

Curriculum:

Seminari list (with titles and explanation):

S1 External aspects of the cerebral hemispheres: functional localization of the lobi, sulci and gyri; major fibre systems in the telencephalon – task resolving (pg. 637-652). Neocortex, archicortex and paleocortex (pg. 638-652) – task resolving.

Learning outcomes: To revise external features of the telencephalon (borders, position, division and relations to the lateral ventricles). To describe and show cerebral lobes, and the main gyri and sulci. To appoint and describe parts of the telencephalon (cortex, white matter, basal ganglia, lateral ventricles). To describe basal ganglia and their internal and external connections. To recognize structures on horizontal, frontal and sagittal sections through the telencephalon. To describe the layers and functional areas of the neocortex. To describe the centers of the archicortex and paleocortex.

S2 Diencephalon – task resolving

To describe functional systems of the diencephalon with emphasis on the hypothalamic nuclei and hypophisis.

S3 Brainstem and cerebellum – task resolving

To describe centers and pathways as well as other structures of the brainstem. To describe structures of the cerebellum (position, hemispheres, vermis, cerebellar peduncles, and nuclei).

S4 Surface and cross-sectional features of the spinal cord (pg. 711-715)-task resolving.

To describe external features of the spinal cord as well as spinal nerves. To recognize and describe centers and tracts of different cross-sectional levels of the spinal cord.

S5 Somatosensory and visual systems – task resolving

Students will learn to describe and classify non-specific and specific ascending pathways. To understand components involved in the transmission of the stimulus in the nervous system (receptors, ascending pathways, nuclei, cerebral cortex). To understand sensory perception and chemical senses (smell and taste). To explain the types of sensory receptors and stimuli. To explain the dorsal column-medial lemniscus pathway (DCML) that conveys sensations of fine touch, vibration, two-point discrimination, and proprioception (position) from the skin and joints. To explain and understand the spinothalamic tract (anterolateral system) that is constituted of the anterior spinothalamic tract which carries information about crude touch and the lateral spinothalamic tract which carries information about pain and temperature. To understand pain conduction and pain processing. To comprehend spinal modulation of incoming pain impulses and central modulation via descending tracts. Students will learn to revise the structure of the retina. To describe the primary visual pathway and primary visual cortex as well as the visual association cortex of the occipital, temporal, and parietal lobes. To describe autonomic control of the visual reflexes: accommodation-convergence reflex and pupillary reflex.

S6 Auditory and vestibular systems – task resolving

Students will learn to describe centers and pathways of the auditory and vestibular systems.

Vježbe list (with titles and explanation):

P1 Basal ganglia. Major fibre systems in the telencephalon – task resolving

Learning outcomes: To describe and to position basal ganglia. To name the major pathways of the telencephalon.

P2 Specific and non-specific thalamic nuclei – task resolving.

To describe the division of the thalamus on the specific and non-specific thalamic nuclei.

P3 Cranial nerve nuclei (pg. 679-711) – task resolving

To describe the cranial nerve nuclei according to embryonic origin: afferent nuclei (general sensory, specific sensory, and visceral) and efferent nuclei (somatic, brachiomotor, and parasympathetic).

P4 Spinal cord – the structure of the substantia grisea and alba. Motor functions of the spinal cord,

Clinical remarks of the upper and lower motoneurons and referred pain (pg. 715-721) – task resolving

To describe the classification of the cytoarchitecture of the substantia grisea and to identify major tracts of the substantia alba. To explain the laminar structure of grey matter. To analyze the main ascending and descending tracts and their seating. To describe propriospinal fibers. To explain the origin of the spinal nerve and to describe the spinal nerve, with emphasis on dorsal and ventral nerve roots, dorsal root ganglion as well as division of the spinal nerve. To define the difference between spinal and autonomic ganglia. To describe spinal ganglia and pseudounipolar neuron. To describe structural features of the reflex arch and define spinal reflexes: stretch or myotatic reflex (monosynaptic reflex) and flexor or withdrawal reflex (polysynaptic reflex). Interpretation of the motoric and sensible failures with respect to the level of the spinal cord injury.

P5 Somatomotor system - task resolving

Students will learn to describe the centers and pathways of the pyramidal and extrapyramidal systems.

P6 Olfactory and gustatory systems – task resolving

Students will learn to describe centers and pathways of the olfactory and gustatory systems.

Predavanja list (with titles and explanation):

L1 Neuroaxis, distribution of the grey and white matter in the CNS (pg.593-603).

Learning outcomes: To mark off and to describe the main parts of the central nervous system. To explain the linkage between development of the central nervous system and integral parts of the central nervous system. To explain the neural axis (neuroaxis) and to define the terms ventral/dorsal and the rostral/caudal in the central nervous system (Forel and Meynert axis). To explaine the morphology of the neuron and its functional characteristic. To describe neuroglial cells and their functions. To describe the main morphological characteristic of the grey and white matter. To explaine the main distribution of the grey matter in CNS, point out the difference between superfitial grey matter (cortex) and deep nuclei. To explaine the fibre content in white matter and their functional characteristics.

L2 Telencephalon – hemispheres. Basal ganglia (pg. 652-656). Telencephalon medium and organization of the white matter (pg. 595-603).

Learning outcomes: To describe the main parts of the telencephalon. To describe the external features of the hemispheres (the lobes, gyruses and sulcuses). To explain the distribution of telencephalic grey and white matter and histological structure (layers) of the cerebral cortex. To explain the morphological and functional division of the cortex. To describe white matter of the telencephalon in sense of association, commissural and projection fibres. To describe the topographical anatomy of the basal ganglia. To describe the telencephalon medium as developmental part of telencephalon. To explain organization of white matter of the telencephalon (commissural, association and projection fibres).To describe the topographical anatomy of the basal ganglia. To describe the telencephalon medium as developmental part of telencephalon. To explain organization of white matter of the telencephalon (commissural, association and projection fibres).

L3 Diencephalon: thalamus (pg. 658-660).

Learning outcomes: To describe the external features, position and relations of distinctive parts of the diencephalon. To explain inner organization of the thalamic nuclei. To position thalamus and explain its relationship with hypothalamus. To describe position and relations of the hypothalamus and to discuss its function and afferent/efferent connections.

L4 Subthalamus, epithalamus and metathalamus (pg. 656-658). Hypothalamus and hypophysis (pg. 661-664).

Learning outcomes: To describe constituent parts of the epithalamus and its position, structure and function. To describe the organization of grey and white matter of the subthalamus (fields of Forel, subthalamic nucleus). Metathalamic nuclei and its functions. To explain the function of the hypothalamus, its nuclei and connections. To describe position of the pituitary gland and its division to adenohipophysis and neurohypophysis. To explain the control of hypophysis hormone stimulation and to understand the main principles of the neuroendocrinology. To link hypothalamus to the pituitary gland by means of neurosecretion and the portal system. To explain division of the hypothalamus into three horizontal and three vertical zones. To distinguish magnocellular from the parvocellular system of the hypothalamic neurons. To describe the function of hypothalamus with respect of its connection to anterior and posterior lobe of the pituitary gland. To describe the position and relations of the pituitary gland as well as its division to adenohypophysis and neurohypophysis, control of the hormons secretion, and basic principles of the neuroendocrinology. To analyze portal circulation of the adenohypophysis and systemic circulation of the neurohypophysis.

L5 Brainstem. Mesencephalon (pg. 664-668).

Learning outcomes: An overview of the division and external features of the brainstem. Students will learn to appoint and to describe the major parts of the medulla oblongata, pons and midbrain, and to explain their mutual relationship. To describe the internal structure of constituent parts of the brainstem. To analyze and discuss the arrangement of grey and white matter of the medulla oblongata, pons and midbrain. To know the structures of the midbrain cerebral aqueduct, cerebral crura, substantia nigra, nucleus ruber and corpora quadrigemina. To specify the origin of the cranial nerves and describe the external features of the midbrain. To recognize structures on horizontal and sagittal sections through the midbrain.

L6 Pons, medulla oblongata and cerebellum (pg. 668-679).

To identify and distinguish main tracts and nuclei of the brainstem and to analyze the differences of cross sections in the level of the caudal, mid and rostral medulla as well as pons and midbrain. To explain the functional organization of gray and white matter of the brain stem. To appoint and explain function of the reticular formation. To explain the longitudinal zones on the mediosagittal section of the brainstem (basis, tegmentum, tectum). Based on this, to analyze the position of cranial nerve nuclei and other specific nuclei of the brainstem. To analyze the position of the main ascending and descending tracts and reticular formation. To describe division of the cerebellum on three functional and phylogenetic parts. To describe the functional organization of the cerebellar cortex (cells of molecular layer, Purkinje cells layer, and granular cells layer) and afferent fibres (mossy and climbing fibres). To identify deep masses of grey matter (nucleus dentatus, nucleus emboliformis, nucleus globosus and nucleus fastigii). To explain the tracts of the cerebellum: the major afferent and efferent connections and the position of the tracts inside the cerebelar peduncles.

L7 Somatic nervous system, pyramidal tract (725-728).

To explain the basic organization of the motor system. To explain the hierarchy of the motor system – from the skeletal muscle to the cerebral cortex. To explain the concept of the motor unit. To explain the role of the cerebral cortex in the control of voluntary movements. To define primary motor and premotor cortex. To describe pyramidal pathways (corticospinal and corticobulbar tracts). To explain the somatotopic representation of the motor cortex. To understand the role of the basal ganglia in movement control. To list and describe the neuronal circuits of the basal ganglia. To understand the role of the cerebellum in movement control and motor learning. To explain major motor pathways and to distinguish between pyramidal and extrapyramid tracts. To explain the motor cerebral cortex's areal, laminar, and modular organization. To explain the connection between motor nuclei and motor cortex. To explain the execution of motoric information.

L 8 Extrapyramidal system. Peripheral and central sections. Execution of voluntary movements (pg. 728-731)

To explain efferent nerve endings and the concept of the motor unit, neuromuscular junctions, and motor end-plates. To describe the pathways of the extrapyramidal system. To describe circuits and descending tracts of the extrapyramidal nervous system. To describe cerebellar pathways involved in motoric functions. To describe types of motoneurons (upper and lower motoneurons) in the cerebral cortex and spinal cord.

L9 Somatosensory system and nociceptive system (pg. 732-738), (pg. 752-755).

To describe the somatosensory cortex, spinal afferent system, and trigeminal afferent system. To describe conduction and processing of the pain.

L10 Optic tract and visual reflexes (pg. 738-742).

To describe the pathway of the optic tract, visual reflexes, and management of the ocular motor function.

L11 Auditory, gustatory, and olfactory systems (pg. 742,748-751).

To explain the organization and structure of the auditory system. To describe structures of the inner ear, functional anatomy of the cochlea, as well as auditory pathways. To describe regio olfactoria and pathway of the olfactory tract. To describe peripheral and central sections of the gustatory system.

L 12 Vestibular system (pg. 746-749).

To explain the organization and structure of the vestibular system. To describe structures of the inner ear, functional anatomy of the vestibule and semicircular canals as well as vestibular pathways.

L 15 Autonomic nervous system (pg. 755-763)

To explain the basic organization of the autonomic nervous system. To appoint the centers of the autonomic nervous system. To explain sympathetic afferent and efferent nerve fibers, sympathetic chain, and ganglia.To explain parasympathetic efferent (craniosacral origin) and afferent nerve fibers. To compare the organization of the

sympathetic and parasympathetic parts of the autonomic nervous system. To appoint the plexuses of the autonomic nervous system. To define parasympathetic ganglia.

L16. Central regulation of the autonomic nervous system (pg. 764-768)

To explain the supervising function of the autonomic nervous system in control of the vital functions. To explain autonomic innervation of organs: lacrimal gland, heart, lung, stomach, intestine to the splenic flexure, colon (descending, sigmoid, and rectum), the adrenal gland core, internal rectal sphincter, urinary bladder, autonomic control of the erection (penis and clitoris) and ejaculation.

L 13 Limbic cortex and limbic system (pg. 768-770).

To describe parts and functions of the limbic system. To explain the hippocampal formation and its connections within the limbic system. To describe the gyri of the limbic lobe (inner and outer ring). To describe structures of the hippocampus and gyrus dentatus. To define areas of the limbic and paralimbic cortex. To describe connections of the limbic system. To explain the Papez circuit. To describe corpus amygdaloideum and its connections.

L14 Overview of the motor and sensory pathways

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Student obligations:

ECTS Grading System: Student grading will be conducted according to the current Ordinance on Studies of the University of Rijeka (approved by the Senate) and the Ordinance on Student Grading at the Faculty of Medicine in Rijeka (approved by the Faculty Council).

Student work will be assessed and graded during the course and on the final exam. During the course, a student may achieve up to 50% of the grade and at the final exam up to 50% of the grade, too. Students are graded according to the ECTS credit (A-D) and numeric (1-5) system.

Students are obliged to attend all forms of teaching during the course and may be absent from 30% of the classes. If a student is absent for more than 30% of the classes, he will not receive a signature and will have to re-enter the course. Also, a student who gains less than 25 credits must re-enter the course.

During the course, students are awarded credits by taking two midterm exams. If a student does not pass a midterm exam, he may take the makeup midterm exam on the announced date. Each midterm has its own makeup date.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

I. Assessment and grading during the course Assessment will be carried out through two midterm exams:

1. Functional organization of gray and white matter of the central nervous system

2. Functional systems of the central nervous system Midterm is a writen exam.

Each midterm exam is comprised of 50 questions. Midterm exams are graded as follows:

Correct answers	Credits
25	12,5
26	13
27-28	14
29-30	15
31-32	16
33-34	17
35-36	18
37-38	19
39-40	20
41-42	21
43-44	22
45-46	23
47-48	24
49-50	25

II. Requirements for the final exam:

➢ A student who attended classes in accordance with the Ordinance on Studies of the University of 8 Rijeka. ➢ A student who gained at least 25 out of maximum 50 credits at midterms.

III. Grading on the final exam:

The final exam is an oral exam and it is graded as follows:

Grade	Credits
Sufficient (2)	**25**
Good (3)	**30**
Very good (4)	**40**
Excellent (5)	**50**

The final grade consists of the sum of credits gained during the course and on the final oral exam. Grading within the ECTS grading system is carried out with an absolute distribution, i.e. based on the final achievement:

A – (90 - 100%) EXCELLENT (5)

B – (75 - 89,9%) VERY GOOD (4)

C – (60 - 74,9%) GOOD (3)

D – (50 - 59,9%) SUFFICIENT (2)

F – (0 - 49,9%) INSUFFICIENT (1)

The numeric grading system, compared to the ECTS grading system, is as follows: A = excellent (5) B = very good (4) C = good (3) D = sufficient (2) F = insufficient (1)

Other notes (related to the course) important for students:

Course content and all the notifications regarding the course, including exam dates, can be found on the official web site - http://www.medri.uniri.hr , http://medical-studies-in-english.com/

Final exam dates:

13.12.2023.

23.02.2024.

8.07.2024.

9.09.2024.

23.09.2024.

COURSE HOURS 2023/2024

Neuroanatomy

Predavanja (Place and time or group)	**Vježbe** (Place and time or group)	**Seminari** (Place and time or group)
02.10.2023		

L1 Neuroaxis, distribution of the grey and white matter in the CNS (pg.593-603).:
• P15 - VIJEĆNICA (11:15 - 13:00) [1553]
  ○ N_317
 	
L2 Telencephalon – hemispheres. Basal ganglia (pg. 652-656). Telencephalon medium and organization of the white matter (pg. 595-603).:
• P15 - VIJEĆNICA (11:15 - 13:00) [1553]
  ○ N_317
	P1 Basal ganglia. Major fibre systems in the telencephalon – task resolving:
	• P15 - VIJEĆNICA (14:30 - 16:00) [1553]
	  ○ Na-P2
		S1 External aspects of the cerebral hemispheres: functional localization of the lobi, sulci and gyri; major fibre systems in the telencephalon – task resolving (pg. 637-652). Neocortex, archicortex and paleocortex (pg. 638-652) – task resolving.:
		• P15 - VIJEĆNICA (13:00 - 14:30) [1553]
		  ○ Na-S2

prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
03.10.2023		

	P1 Basal ganglia. Major fibre systems in the telencephalon – task resolving:
	• P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1600]
	  ○ Na-P3
		S1 External aspects of the cerebral hemispheres: functional localization of the lobi, sulci and gyri; major fibre systems in the telencephalon – task resolving (pg. 637-652). Neocortex, archicortex and paleocortex (pg. 638-652) – task resolving.:
		• P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1600]
		  ○ Na-S3

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
05.10.2023		

	P1 Basal ganglia. Major fibre systems in the telencephalon – task resolving:
	• P08 (09:30 - 11:00) [1600]
	  ○ Na-P1
		S1 External aspects of the cerebral hemispheres: functional localization of the lobi, sulci and gyri; major fibre systems in the telencephalon – task resolving (pg. 637-652). Neocortex, archicortex and paleocortex (pg. 638-652) – task resolving.:
		• P08 (08:00 - 09:30) [1600]
		  ○ Na-S1

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
09.10.2023		

L3 Diencephalon: thalamus (pg. 658-660).: • P15 - VIJEĆNICA (11:15 - 13:00) [1553] ◦ N_317 L4 Subthalamus, epithalamus and metathalamus (pg. 656-658). Hypothalamus and hypophysis (pg. 661-664).: • P15 - VIJEĆNICA (11:15 - 13:00) [1553] ◦ N_317	P2 Specific and non-specific thalamic nuclei – task resolving.: • P09 - NASTAVA NA ENGLESKOM JEZIKU (14:30 - 16:00) [1553] ◦ Na-P2	S2 Diencephalon – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (13:00 - 14:30) [1553] ◦ Na-S2
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
10.10.2023		
	P2 Specific and non-specific thalamic nuclei – task resolving.: • P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1600] ◦ Na-P3	S2 Diencephalon – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1600] ◦ Na-S3
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
12.10.2023		
	P2 Specific and non-specific thalamic nuclei – task resolving.: • P08 (09:30 - 11:00) [135] ◦ Na-P1	S2 Diencephalon – task resolving: • P08 (08:00 - 09:30) [135] ◦ Na-S1
izv. prof. dr. sc. Ćelić Črnac Tanja, dr. med. [135]		
16.10.2023		
L5 Brainstem. Mesencephalon (pg. 664-668).: • P15 - VIJEĆNICA (11:15 - 13:00) [1553] ◦ N_317 L6 Pons, medulla oblongata and cerebellum (pg. 668-679).: • P15 - VIJEĆNICA (11:15 - 13:00) [1553] ◦ N_317	P3 Cranial nerve nuclei (pg. 679-711) – task resolving: • P15 - VIJEĆNICA (14:30 - 16:00) [1600] ◦ Na-P2	S3 Brainstem and cerebellum – task resolving: • P15 - VIJEĆNICA (13:00 - 14:30) [1600] ◦ Na-S2
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553] · prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
17.10.2023		
	P3 Cranial nerve nuclei (pg. 679-711) – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1553] ◦ Na-P3	S3 Brainstem and cerebellum – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1553] ◦ Na-S3
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
19.10.2023		

	P3 Cranial nerve nuclei (pg. 679-711) – task resolving:
	• P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [135]
	  ◦ Na-P1
		S3 Brainstem and cerebellum – task resolving:
		• P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [135]
		  ◦ Na-S1

izv. prof. dr. sc. Ćelić Črnac Tanja, dr. med. [135]		
23.10.2023		

	P4 Spinal cord – the structure of the substantia grisea and alba. Motor functions of the spinal cord, Clinical remarks of the upper and lower motoneurons and referred pain (pg. 715-721) – task resolving:
	• P15 - VIJEĆNICA (14:45 - 16:00) [1600]
	  ◦ Na-P2
		S4 Surface and cross-sectional features of the spinal cord (pg. 711-715)-task resolving.:
		• P15 - VIJEĆNICA (12:45 - 14:15) [1600]
		  ◦ Na-S2

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
24.10.2023		

	P4 Spinal cord – the structure of the substantia grisea and alba. Motor functions of the spinal cord, Clinical remarks of the upper and lower motoneurons and referred pain (pg. 715-721) – task resolving:
	• P06 (09:30 - 11:00) [1553]
	  ◦ Na-P3
		S4 Surface and cross-sectional features of the spinal cord (pg. 711-715)-task resolving.:
		• P06 (08:00 - 09:30) [1553] [1600]
		  ◦ Na-S3

prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553] · prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
26.10.2023		

	P4 Spinal cord – the structure of the substantia grisea and alba. Motor functions of the spinal cord, Clinical remarks of the upper and lower motoneurons and referred pain (pg. 715-721) – task resolving:
	• P07 (09:30 - 11:00) [135]
	  ◦ Na-P1
		S4 Surface and cross-sectional features of the spinal cord (pg. 711-715)-task resolving.:
		• P07 (08:00 - 09:30) [135]
		  ◦ Na-S1

izv. prof. dr. sc. Ćelić Črnac Tanja, dr. med. [135]		
30.10.2023		

L7 Somatic nervous system, pyramidal tract (725-728).:
• P01 (11:15 - 13:00) [1600]
  ◦ N_317
 	
L 8 Extrapyramidal system. Peripheral and central sections. Execution of voluntary movements (pg. 728-731):
• P01 (11:15 - 13:00) [1600]
  ◦ N_317		

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
06.11.2023		

L9 Somatosensory system and nociceptive system (pg. 732-738), (pg. 752-755).: • P15 - VIJEĆNICA (11:15 - 13:00) [1600] ◦ N_317 L10 Optic tract and visual reflexes (pg. 738-742).: • P15 - VIJEĆNICA (11:15 - 13:00) [1600] ◦ N_317	P5 Somatomotor system - task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (14:30 - 16:00) [136] ◦ Na-P2	S5 Somatosensory and visual systems – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (13:00 - 14:30) [136] ◦ Na-S2
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600] · doc. dr. sc. Šoša Ivan, dr. med. [136]		
07.11.2023		
	P5 Somatomotor system - task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1600] ◦ Na-P3	S5 Somatosensory and visual systems – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1600] ◦ Na-S3
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
09.11.2023		
	P5 Somatomotor system - task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1553] ◦ Na-P1	S5 Somatosensory and visual systems – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1553] ◦ Na-S1
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
13.11.2023		
L11 Auditory, gustatory, and olfactory systems (pg. 742,748-751).: • P15 - VIJEĆNICA (11:15 - 13:00) [1600] ◦ N_317 L 12 Vestibular system (pg. 746-749).: • P15 - VIJEĆNICA (11:15 - 13:00) [1600] ◦ N_317	P6 Olfactory and gustatory systems – task resolving: • P15 - VIJEĆNICA (14:30 - 16:00) [1600] ◦ Na-P2	S6 Auditory and vestibular systems – task resolving: • P15 - VIJEĆNICA (13:00 - 14:30) [1600] ◦ Na-S2
prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
14.11.2023		
	P6 Olfactory and gustatory systems – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (09:30 - 11:00) [1553] ◦ Na-P3	S6 Auditory and vestibular systems – task resolving: • P09 - NASTAVA NA ENGLESKOM JEZIKU (08:00 - 09:30) [1553] ◦ Na-S3
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
16.11.2023		

	P6 Olfactory and gustatory systems – task resolving:
	• P01 (09:30 - 11:00) [136]
	  ○ Na-P1
		S6 Auditory and vestibular systems – task resolving:
		• P01 (08:00 - 09:30) [136]
		  ○ Na-S1

doc. dr. sc. Šoša Ivan, dr. med. [136]		
20.11.2023		

L 13 Limbic cortex and limbic system (pg. 768-770).:
• P15 - VIJEĆNICA (11:15 - 12:45) [1600]
  ○ N_317
 	
L14 Overview of the motor and sensory pathways:
• P15 - VIJEĆNICA (11:15 - 12:45) [1600]
  ○ N_317		

prof. dr. sc. Zoričić Cvek Sanja, dr. med. [1600]		
22.11.2023		
L 15 Autonomic nervous system (pg. 755-763): • P01 (14:15 - 15:00) [1553] ○ N_317		
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		
23.11.2023		
L16. Central regulation of the autonomic nervous system (pg. 764-768): • P15 - VIJEĆNICA (11:15 - 12:00) [1553] ○ N_317		
prof. dr. sc. Cvijanović Peloza Olga, dr. med. [1553]		

List of lectures, seminars and practicals:

PREDAVANJA (TOPIC)	Number of hours	Location
L1 Neuroaxis, distribution of the grey and white matter in the CNS (pg.593-603).	1	P15 - VIJEĆNICA
L2 Telencephalon – hemispheres. Basal ganglia (pg. 652-656). Telencephalon medium and organization of the white matter (pg. 595-603).	1	P15 - VIJEĆNICA
L3 Diencephalon: thalamus (pg. 658-660).	1	P15 - VIJEĆNICA
L4 Subthalamus, epithalamus and metathalamus (pg. 656-658). Hypothalamus and hypophysis (pg. 661-664).	1	P15 - VIJEĆNICA
L5 Brainstem. Mesencephalon (pg. 664-668).	1	P15 - VIJEĆNICA
L6 Pons, medulla oblongata and cerebellum (pg. 668-679).	1	P15 - VIJEĆNICA
L7 Somatic nervous system, pyramidal tract (725-728).	1	P01
L 8 Extrapyramidal system. Peripheral and central sections. Execution of voluntary movements (pg. 728-731)	1	P01

L9 Somatosensory system and nociceptive system (pg. 732-738), (pg. 752-755).	1	P15 - VIJEĆNICA
L10 Optic tract and visual reflexes (pg. 738-742).	1	P15 - VIJEĆNICA
L11 Auditory, gustatory, and olfactory systems (pg. 742,748-751).	1	P15 - VIJEĆNICA
L 12 Vestibular system (pg. 746-749).	1	P15 - VIJEĆNICA
L 15 Autonomic nervous system (pg. 755-763)	1	P01
L16. Central regulation of the autonomic nervous system (pg. 764-768)	1	P15 - VIJEĆNICA
L 13 Limbic cortex and limbic system (pg. 768-770).	1	P15 - VIJEĆNICA
L14 Overview of the motor and sensory pathways	1	P15 - VIJEĆNICA

VJEŽBE (TOPIC)	Number of hours	Location
P1 Basal ganglia. Major fibre systems in the telencephalon – task resolving	2	P08 P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA
P2 Specific and non-specific thalamic nuclei – task resolving.	2	P08 P09 - NASTAVA NA ENGLESKOM JEZIKU
P3 Cranial nerve nuclei (pg. 679-711) – task resolving	2	P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA
P4 Spinal cord – the structure of the substantia grisea and alba. Motor functions of the spinal cord, Clinical remarks of the upper and lower motoneurons and referred pain (pg. 715-721) – task resolving	2	P06 P07 P15 - VIJEĆNICA
P5 Somatomotor system - task resolving	2	P09 - NASTAVA NA ENGLESKOM JEZIKU
P6 Olfactory and gustatory systems – task resolving	2	P01 P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA

SEMINARI (TOPIC)	Number of hours	Location
S1 External aspects of the cerebral hemispheres: functional localization of the lobi, sulci and gyri; major fibre systems in the telencephalon – task resolving (pg. 637-652). Neocortex, archicortex and paleocortex (pg. 638-652) – task resolving.	2	P08 P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA
S2 Diencephalon – task resolving	2	P08 P09 - NASTAVA NA ENGLESKOM JEZIKU
S3 Brainstem and cerebellum – task resolving	2	P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA
S4 Surface and cross-sectional features of the spinal cord (pg. 711-715)-task resolving.	2	P06 P07 P15 - VIJEĆNICA
S5 Somatosensory and visual systems – task resolving	2	P09 - NASTAVA NA ENGLESKOM JEZIKU

S6 Auditory and vestibular systems – task resolving	2	P01 P09 - NASTAVA NA ENGLESKOM JEZIKU P15 - VIJEĆNICA

EXAM DATES (final exam):

1.	13.12.2023.
2.	23.02.2024.
3.	08.07.2024.
4.	09.09.2024.
5.	23.09.2024.