School of Medicine

Format of course plan

Course title: Neuroanatomy

The audiences: International medical students, 3rd semester

Total credit: 1.5

The time to answer of questions: Saturday 14-16

The time of the lesson: first semester, Tuesdays 8-10

Teacher: dr. Ali Ghanbari

Prerequisite: Anatomy of Muscloskeletal system- Anatomy of digestive, cardiovascular and respiratory systems

General goals: Understanding neuroanatomical structures, their relations, their blood supplies in the human body in accompany with the study of disorders caused by diseases, including motor and sensory disorders.

General goals of sessions:

1- Description of the neuroanatomy as a hole.

2- Description of white and gray matters of spinal cord.

3- Description of tracts in spinal cord and related disorders.

4- Description of white and gray matters of medulla oblongata with addressing its related tracts and disorders.

5- Description of white and gray matters of pons with addressing its related tracts and disorders.

6- Description of white and gray matters of midbrain with addressing its related tracts and disorders.

7- Description of white and gray matters of cerebellum with addressing its related tracts and disorders.

8- Description of white and gray matters of thalamus with addressing its related tracts and disorders.

9- Description of white and gray matters of hypothalamus, sub-thalamus, epithalamus with addressing its related tracts and disorders.

10- Description of white and gray matter of cerebrum.

11- Description of limbic system.

12- Description of blood supply of central nervous system.

Specific Goals By the general purpose of each session

General goals of first lesson :

Description of the neuroanatomy as a hole.

Special goals of first lesson :

Briefly describe the neuroanatomical terms such as neurons, axon, dendrites, white and gray matter and their specified forms. Describe the synapse and neurotransmitters. Describe the division of human nervous system physiologically and anatomically. Describe the sub- divisions of C.N.S and P.N.S.

General goals of second lesson :

Description of white and gray matters of spinal cord.

Special goals of second lesson :

Teaching external features of spinal cords such as its length, shape, and fissures. Determining the fasciculus and funiculus of spinal cord with emphasis on their works, and related paralysis outcomes, respectively. Make detail description of nuclei components of each gray matter horn of spinal cord with emphasis on their works, and related paralysis outcomes, respectively.

General goals of third lesson :

Description of tracts in spinal cord and related disorders.

Special goals of third lesson :

Teaching tracts, their origination and termination, involving in each fasciculus, respectively with emphasis on their works, and related paralysis outcomes.

General goals of forth lesson :

Description of white and gray matters of medulla oblongata with addressing its related tracts and disorders.

Special goals of forth lesson :

Teaching external features of medulla oblongata such as its length, shape, and fissures. Determining the white and gray matters of medulla oblongata with emphasis on their

works, and related paralysis outcomes, respectively. Make detail description of nuclei, descending, and ascending tracts in medulla oblongata.

General goals of fifth lesson :

Description of white and gray matters of pons with addressing its related tracts and disorders.

Special goals of fifth lesson :

Teaching external features of pons such as its length, shape, and fissures. Determining the white and gray matters of pons with emphasis on their works, and related paralysis outcomes, respectively. Make detail description of nuclei, descending, and ascending tracts in pons.

General goals of sixth lesson :

Description of white and gray matters of midbrain with addressing its related tracts and disorders.

Special goals of sixth lesson :

Teaching external features of midbrain such as its length, shape, and fissures. Determining the white and gray matters of midbrain with emphasis on their works, and related paralysis outcomes, respectively. Make detail description of nuclei, descending, and ascending tracts in midbrain.

General goals of seventh lesson :

Description of white and gray matters of cerebellum with addressing its related tracts and disorders.

Special goals of seventh lesson :

Teaching external features of cerebellum such as its length, shape, fissures, lobules, and peduncles. Determining the white and gray matters of cerebellum with emphasis on their works, and related paralysis outcomes, respectively. Make detail description of nuclei, descending, and ascending tracts in cerebellum. Explain the regions related to Arceocebellum, Paleocerebellum, and Neocerebellum anatomically and functionally.

General goals of eighth lesson :

Description of white and gray matters of thalamus with addressing its related tracts and disorders.

Special goals of eighth lesson:

Describe the white matter and gray matter of thalamus. During explanation of its nuclei, the connections, locations and works of them would be presented, respectively. Explain the disorders related to thalamus like thalamic hand syndrome.

General goals of ninth lesson :

Description of white and gray matters of hypothalamus, sub-thalamus, epi-thalamus with addressing its related tracts and disorders.

Special goals of ninth lesson:

Describe the white matter and gray matter of these anatomical structures. During explanation of their nuclei, the connections, locations and works of them would be presented, respectively. The efferent and and afferent fibers would be discussed either. It would be explained the disorders related to these structures like hemiballismus.

General goals of tenth lesson :

Description of white and gray matter of cerebrum.

Special goals of tenth lesson:

Describe the white matter and gray matter of cerebrum and give some details regarding the location and composition of capsules of white matter in accompany with prescription of the main brodmann areas. During explanation of the white matter and gray matter of cerebrum, the disorders related to these structures like sensory and motor paralysis would be discussed.

General goals of eleventh lesson :

Description of limbic system.

Special goals of tenth lesson:

Describe the internal and external circles of limbic system and related regions such as sub-calosal area, hippocampus, anterior thalamic nucleus, cingulate gyrus, fornix, and mammillary body. The function and the Pepez cicuit also would be discussed.

General goals of twelfth lesson :

Description of blood supply of central nervous system.

Special goals of tenth lesson:

Describe the arteries supplying spinal cord and cerebrum, respectively. Make some details about the Ave-cina (Vilis) arterial circle, its arising branches and their supplied related regions.

At the end of the class, the student's abilities would be:

1- Description of the neuroanatomy as a hole.

2- Description of white and gray matters of spinal cord.

3- Description of tracts in spinal cord and related disorders.

4- Description of white and gray matters of medulla oblongata with addressing its related tracts and disorders.

5- Description of white and gray matters of pons with addressing its related tracts and disorders.

6- Description of white and gray matters of midbrain with addressing its related tracts and disorders.

7- Description of white and gray matters of cerebellum with addressing its related tracts and disorders.

8- Description of white and gray matters of thalamus with addressing its related tracts and disorders.

9- Description of white and gray matters of hypothalamus, sub-thalamus, epithalamus with addressing its related tracts and disorders.

10- Description of white and gray matter of cerebrum.

11- Description of limbic system.

12- Description of blood supply of central nervous system.

References:

Nuroanatomy,.Mohammad akbari, Tehran University of Medical Sciences

 Snell neuroanatomy for medical students

Sobotta᾽s atlas of anatomy, Volume III

Teaching method:

Lecture, Mind map, answer and question, problem solved, group teaching (in practical class)

Educational tools:

Models, fixed brains, Video Projector and Whiteboard

Assessment and evaluation of the test

Considered time For answering	date	Share of total (score (in percent	Method	Test
15 min for each quiz	End of each session	2	Short explanation and Multi-choice	**Quiz**
20 min	Midterm	4	Multi-choice	**Mid term exam**
40 min	Final	12	Multi-choice	**Final Exam**
5 min for each	Each lesson	2	Answer and question (orally)	**Active attendance at the class**

Classroom roles and student expectations:

The presence of all students in all sessions is mandatory and students must attend the each session.

Schedule Anatomy Course Lower Limb

Lecturer	Topic	Sessions
Dr. Ali Ghanbari	Characterization of neuroanatomical terms and presentation of human nervous system as a hole	۱
Dr. Ali Ghanbari	External anatomical features of the spinal cord	۲
Dr. Ali Ghanbari	Internal structure of the spinal cord	۳
Dr. Ali Ghanbari	External and Internal structures of the medulla oblongata	۴
Dr. Ali Ghanbari	External and Internal structures of the pons	۵
Dr. Ali Ghanbari	External and Internal structures of the midbrain	۶
Dr. Ali Ghanbari	Gray and white matter of cerebellum	۷
Dr. Ali Ghanbari	External and Internal structure of thalamus	۸
Dr. Ali Ghanbari	External and Internal structure of hypothalamus, epithalamus,sub-thalamus	۹
Dr. Ali Ghanbari	Gray and white matter of cerebrum	۱۰
Dr. Ali Ghanbari	Limbic system	۱۱
Dr. Ali Ghanbari	Arterial supply of central nervous system	۱۲