



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

**Nervous System
and special
sensation**

1	Course title	Nervous System and special sensation
2	Course number	0500310
3	Credit hours (theory, practical)	6 and 1 (total 7)
	Contact hours (theory, practical)	
4	Prerequisites/corequisites	
5	Program title	
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Medicine
9	Department	
10	Level of course	Undergraduate
11	Year of study and semester (s)	Third year/ second semester
12	Final Qualification	
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	September 2015

16. Course Coordinator:

Dr. Loai Alzghoul;
 office hours 1-2 pm Sunday, Tuesday, Thursday;
 Phone 5355000/23246;
 email: L.zghoul@ju.edu .jo

17. Other instructors:

Name	Topic	Office hours	Phone number	Email
Faraj Bustami	Anatomy	2-4 Thursday	23429	fbustami@ju.edu.jo
Malik alzhilif	pharmacology	1-3 Sun, Teu	23474	m.zihlif@ju.edu.jo

18. Course Description:

Study the organization and physiology of the human central nervous system (CNS), and its role in the pathophysiology of CNS disorders. The course intended to provide students an understanding of the essential principles of neurological function, from cellular and molecular mechanisms of neural signalling and plasticity to the organization and function of sensory and motor systems. Also, this course emphasizes the neural and vascular anatomy of the human brain and spinal cord, providing an anatomical framework for localizing lesions within the central nervous system. It also emphasizes the neurobiological foundation for understanding cognition, mental illness and disorders of human behaviour.

19. Course aims and outcomes:

A- Aims:

By the end of this course, the student should be able to:

1. Describe and identify the gross morphology and microanatomy of the central and peripheral nervous system.
2. Identify the organs of the special senses and describe their anatomical features and histology.
3. Describe the functions of the central and peripheral, and relate structure to function.
4. Describe the functions of the organs of the special senses and relate structure to function.
5. List molecules involved in the normal functioning of the central and peripheral nervous systems, their characteristics and regulation.
6. List the pathologic disorders that affect the central and peripheral nervous systems, their pathogenesis and manifestations.
7. Mention infections of the CNS, including their etiologic agents, pathogenesis, manifestations and diagnosis.
8. List most important drugs used in the treatment of disorders that affect the central and nervous systems including their pharmacologic properties, indications, doses and side effects.
9. Describe the epidemiology of diseases that affect the nervous system.
10. Take comprehensive history and perform a proper physical examination of the central and peripheral nervous system.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...

- Understand the different sizes of axons, their classification and the meaning of their diversity (e.g. Muscle spindle) .
- Understand the factors of lamination, cytoarchitecturing, lamination of the cord. Differences among the regions of the cord.
- Know the organization of the brainstem.
- Know the main ascending and descending pathways
- Identify the subdivision of the cerebellum , deep cerebellar nuclei, cerebellar peduncles. As well as identify the architecture and connection of the cerebellum
- Understand the architecture of the cerebral cortex and its different types

- Know the structures and function of the basal ganglia and the extra-pyramidal tracts
- General identification of brain specimens
- General identification of spinal cord on specimens (anterior root, posterior root, spinal ganglion, cauda equine, enlargements of the corde, blood supply of the cord).
- Understand the general organization of cns
- Know the synaptic function and stimulus processing in the cns
- Identify the main neurotransmitters in the cns and its functions
- Recognize the main component of the nervous system and their function.
- Review the physiology of sensory receptors and different sensory pathways.
- Explain the functional structures of the organs concerned with the special senses, including vision, auditory, vestibular, smell and taste, and their functions, receptors of sensations, their pathway and their localization in the cerebral cortex
- Describe the motor system including reflexes of spinal cord, motor tracts, and the motor regulators such as the basal ganglia and cerebellum.
- Point out the neural basis of higher order functions such as the language, personality, learning and memory as well as sleep and alertness.
- Identify the functional structures of the central nervous system.
- Describe the mechanisms involved in performing functions.
- Define the role of nervous system in motor functions and sensation.
- Identify functional structures for special senses (vision, hearing, smelling and tasting).
- Explain functional mechanisms involved in (vision, hearing, smelling and tasting) sensation.
- Identify the tactile and proprioception sensory pathway and its function
- Identify the pain and thermal sensory pathway and its function
- Learn the neuronal circuits of spinal reflexes and their function in every day activity
- Understand the role of brain stem in motor control
- Describe the role of the basal ganglia in the motor regulation
- Know the effect of basal ganglia dysfunction in motor disorders

- Describe the role of the cerebellum in the motor regulation
- Know the effect of cerebellum dysfunction in motor disorders
- Understand the role of brain stem in motor control the motor cortex (mi) and corticospinal tract role in conscious motor orders
- Identify the function of different parts of the cerebral cortex
- To differentiate the stages of sleep and its electrographic measurement of sleep
- Recognize the mechanisms of slow wave sleep
- Recognize the mechanisms of rapid eye movement sleep
- Recognize the endogenous sleep factors
- Understand the effects of sleep loss on brain function
- Understand the effects of different drugs on sleep
- Recognize the general pathological concepts such as cerebral edema, raised intracranial pressure, herniation and hydrocephalus.
- Identify the main trauma might affect the CNS such as : skull fractures, parenchymal injuries (concussion, contusion, laceration, diffuse axonal injury), traumatic vascular injury (epidural, subdural hematoma).
- Know the malformations and developmental abnormalities affect the CNS including: neural tube defects, forebrain anomalies, posterior fossa anomalies, syringomyelia, perinatal brain injury.
- Know the CNS degenerative disease and their pathophysiology
- Know the tumors of the CNS, their types and prognosis
- Learn the main bacterial, viral, and parasites that most commonly cause infection for the CNS
- Identify the types and pharmacology of general anesthetics
- Identify the types and pharmacology of analgesics
- Know the main sedative – hypnotics and their uses
- Know the pharmacology of antidepressants, and their types
- Identify the main antipsychotics drugs and their side effects

20. Topic Outline and Schedule:**21. Teaching Methods and Assignments:**

Development of ILOs is promoted through the following teaching and learning methods:
Lectures
Colored images
Lab sessions

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:
Midterm (30%)
Practical exam (14%)
Attendance (10%)
Final Exam(46%)

23. Course Policies:

A- Full attendance is granted 10 marks at the end of the course.
B- Make up exams are held for students who did not attend regular exams if they present acceptable reasons to relevant committee.
C- A complementary exam is held next to the course for eligible students according to faculty regulation.
C- Health and safety procedures: we call the student emergency clinic or civil defense office for emergency cases
D- Students who do misconducts such as cheating, plagiarism, misbehavior are reported to the dean office for an interrogation committee

E- Grading policy:

0-39	F
45-49	D-
50-54	D
54-69	D+
60-64	C-
65-69	C
70-73	C+
74-76	B-
77-80	B
81-84	B+
85-89	A-
90-100	A

F- Available university services that support achievement in the course:
Availability of comfortable lecture halls, data show and internet service.

24. Required equipment:

Data show for power point presentation.

25. References:

- 1) Color Textbook of Histology, 3rd edition, Gartner and Hiatt.
- 2) Guyton and Hall Textbook of medical physiology, 13th edition, Hall.
- 3) Ganong's review of medical physiology, 25th edition. Barrett, Barman, Boitano, Brooks.
- 4) Biochemistry (Lippincott illustrated reviews series) 6th edition, Farrier.
- 5) Basic clinical parasitology. F. A. Neva & H.W. Brown. Prentice Hall International Editions.
- 6) Sherries Medical Microbiology, 6th edition, Ryan, Ray, Ahmad, Drew.
- 7) Robbins & Cotran Pathologic Basis of Disease, 9th edition, Kumar, Abbas, Aster.
- 8) Basic and Clinical Pharmacology, 13th edition, Katzung, Trevor.

26. Additional information:

Name of Course Coordinator: Dr. loai Alzghoul-----Signature: ----- Date: -----

----- Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File