Course Specification
Student Version

Course Title:	Neuroscience
Course Code:	NSC 407
Department:	Basic Medical Sciences
Program:	Bachelor of Medicine and Surgery
College:	Vision College in Riyadh
Institution:	Vision College in Riyadh
Revised:	July 2025

A. Course Identification

1. Credit hours: 5 (3+1+1)
2. Level/year at which this course is offered: Level 7/Year 4
3. Pre-requisites for this course (if any): BAN 203, GAD 203, HBO 203, MBG 203, BPC 204, PDO 204, HBT 204, PDT 204.
4. Co-requisites for this course (if any): None

B. Teaching Methods

1	Lecture
2	Practical and skill lab Sessions
3	Seminar

C. Course Description and Main objective

1. Course Description

- This required system-based course integrates the basic sciences into a study of neuroscience and behavior in both health and disease. Each of the basic science topics is incorporated into an integrated body of knowledge covering neuroanatomy, neurophysiology, neurological correlation, neuropharmacology, neuropathology, human behavior and psychiatry utilizing both didactic and self-directed learning methods and clinical models. In the Neurosciences course, students will learn molecular, cellular, physiological, anatomical and functional aspects of the nervous system, and be able to understand various nervous system disorders commonly encountered in clinical practice. In this course, students will learn molecular, cellular, physiological, anatomical and functional aspects of the nervous system, and be able to explain various nervous system disorders commonly encountered in clinical practice. This course also introduces the various nervous system diseases in terms of their basic pathophysiologic mechanisms, including vascular, infectious, neoplastic, degenerative, electrical conduction and neurotransmission abnormalities. It also provides a rationale for the use of pharmacologic agents in the treatment of nervous system disorders. Grasping basic skills of neurological examination is essential. Lastly, students will learn to incorporate pertinent laboratory tests, radiographic findings and EEG results into clinical problem solving.

2. Course Main Objective

The Neurosciences course is intended to provide undergraduate medical students with the key basic concepts of structure and function of the nervous system necessary to understand and practice the management of common neuropsychiatric diseases studied in the clinical phase.

3. Course Objectives

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

1. Explain the normal structure and function of the nervous system.

2. Explain the biochemical, molecular, and cellular mechanisms that are essential for maintaining body homeostasis.
3. Explain the pathogenesis of various diseases such as genetic, developmental, ischemic, metabolic, toxic, infectious, autoimmune, neoplastic, degenerative, and traumatic factors, and the ways in which they affect the nervous system.
4. Explain the principles of essential clinical investigations of patients with nervous problems.
5. Demonstrate a basic knowledge of the pharmacological principles of drugs relevant to clinical practice.
6. Describe and explain the basic aspects of common clinical presentations relevant to the nervous system.
7. Explain the facts and concepts relevant to common clinical conditions including their epidemiology, etiology, pathophysiology, symptoms and signs, complications, investigations, management and prognosis.
8. Acknowledge the principles of spiritual and Prophetic Medicine.
9. Describe the principles of epidemiology of common diseases within a defined population and a systematic approach to screening to reduce the incidence and prevalence of those diseases.
10. Select and apply the most appropriate and cost-effective diagnostic procedures.
11. Demonstrate the importance of psychosocial, spiritual, religious, and cultural factors in patient management.
12. Demonstrate reasoning skills to formulate and prioritize a differential diagnosis.
13. Critically analyze clinical data obtained through history, physical examination, and investigation.
14. Recognize and stress the rationale and importance of teamwork.
15. Obtain an accurate and comprehensive medical history.
16. Perform a complete systematic physical examination.
17. Manage appropriately patients with acute and chronic medical conditions.

D. Course Content

No.	List of Topics
1	Organization of the Nervous System (10 Hours)
2	Sensory Aspects of the Nervous System (31 Hours)
3	Motor Aspects of the Nervous System (34 Hours)
4	Higher Functions of the Nervous System (30 Hours)

E. Assessment tools

#	Assessment task	Percentage of Total Assessment Score
1	Seminar evaluation	10%
2	Quiz	10%
3	Midterm Exam	20%
4	Final Practical Exam	20%
5	Final Written Exam	40%
	Total	**100%**

F. Learning Resources

Required Textbooks	Franklin R. Amthor, Anne B. Theibert, David G. Standaert, Erik D. Roberson (2020): Essentials of Modern Neuroscience. 1st ed. McGraw- Hill - LANGE.
Essential Reference Material	Eric R. Kandel, James H. Schwartz, Thomas M. Jessell, Steven A. Siegelbaum, A. J. Hudspeth, Sarah Mack (2013): Principles of Neural Science. 5th ed. McGraw-Hill.
Electronic Material	LMS resources Neuroscience Online, the Open-Access Neuroscience Electronic Textbook: http://neuroscience.uth.tmc.edu/