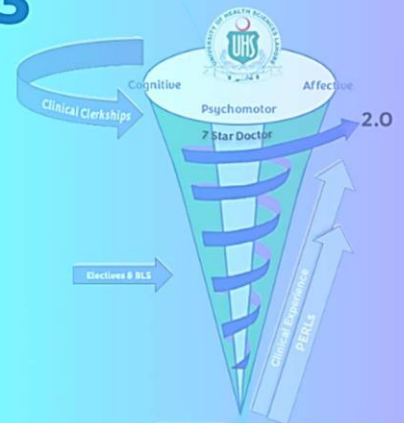




MODULAR INTEGRATED CURRICULUM 2K23



version 2.0



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Principal's Message

Dear Students and Faculty,

It is with great pride and enthusiasm that we embark on this transformative journey together at our newly established medical college. This is a moment of new beginnings, brimming with possibilities, and an opportunity to shape a future grounded in academic excellence, innovation, and compassionate care.

To our students, you are stepping into a world where knowledge meets responsibility. Medicine is more than a profession; it is a calling to serve humanity with integrity and empathy. We are committed to nurturing not just your intellect but also your values, so you may emerge as competent and compassionate healthcare professionals. As you navigate this rigorous yet rewarding journey, remember that perseverance, curiosity, and a spirit of service will be your guiding stars.

To our esteemed faculty, your dedication and expertise form the cornerstone of this institution. Together, let us inspire our students, foster a culture of inquiry, and build a learning environment that emphasizes collaboration, critical thinking, and lifelong learning. You have the unique opportunity to shape the minds and hearts of future leaders in healthcare, and I am confident that your unwavering commitment will pave the way for their success.

Our first block of study marks the foundation of an academic experience that integrates the principles of holistic education with cutting-edge medical training. It is designed to challenge, motivate, and inspire both students and faculty. Let this guide serve as a roadmap, helping us achieve our shared goals while upholding the highest standards of education and care.

The journey ahead will undoubtedly present challenges, but it is in overcoming these that we find growth. Let us work together to create a legacy of excellence that will guide generations to come. With determination, collaboration, and a shared vision, I have no doubt that we will achieve greatness together.

Welcome to the start of an extraordinary chapter.

Warm regards,

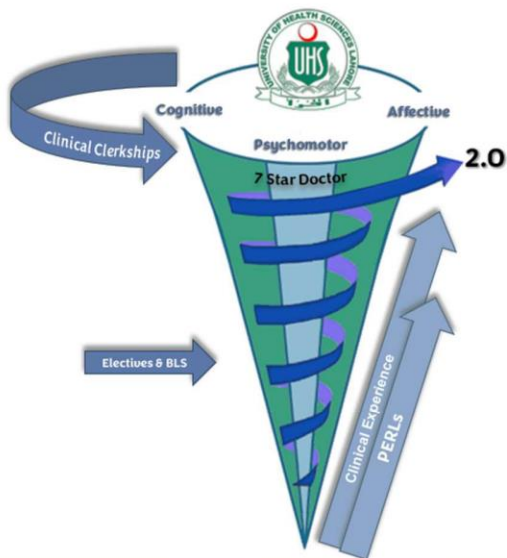
Prof. Shireen Khawar
Principal, QMCK



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BLOCK-6





MODULE NO. 10:
NEUROSCIENCES-I

MODULE RATIONALE

The neurosciences module is crucial as understanding the brain and nervous system is essential for diagnosing and treating a wide range of neurological and psychiatric conditions. This includes conditions such as Alzheimer's disease, Parkinson's disease, epilepsy, migraines, traumatic brain injuries, depression, schizophrenia, and autism. By studying neurosciences, medical students will gain the knowledge and skills necessary to accurately diagnose and effectively treat these conditions.

MODULE OUTCOMES

- Describe the neuroanatomy, histology and embryology of the central nervous system.
- Discuss the physiology of Autonomic Nervous System (ANS), motor and sensory system.
- Explain the pathophysiology of common diseases pertaining to the nervous system.
- Explain a basic management and prevention plan for common neurological disorders.
- Appreciate the burden of neuroscience disorders and their psychosocial impact.

THEMES

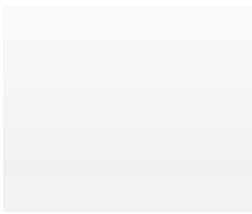
- Neurons/ nerve fibers and receptor
- Cerebrum
- Spinal cord and tracks
- Cerebellum and brainstem, basal ganglia
- Autonomic Nervous System (ANS)

CLINICAL RELEVANCE

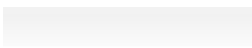
- Neurons/ nerve fibers and receptor
- Cerebrum
- Spinal cord and tracks
- Cerebellum and brainstem, basal ganglia
- ANS

IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the Second professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



SYLLABUS OF NEUROSCIENCES-I MODULE



NORMAL STRUCTURE			
THEORY			
CODE	GROSS ANATOMY	TOTAL HOURS = 46	
	SPECIFIC LEARNING OUTCOMES	DISCIPLINE	TOPIC
NS-A-001	Describe the basic organization of nervous system	Human Anatomy	Nervous system
	Identify and describe the components of the Nervous system and their function	Human Anatomy	
NS-A-002	Trace the Origin, exit from vertebral canal, branches & Distribution of typical spinal nerve.	Human Anatomy	Spinal Nerves
NS-A-003	Identify the Location, Extent, Coverings and Blood supply of spinal cord Discuss & tabulate nuclear organization at different levels of Spinal cord. Describe, draw & label the transverse section of spinal cord at mid cervical level showing ascending & descending tracts Tabulate the sensory nerve endings, and anatomical sites of first, second, third order neurons of ascending tracts Tabulate first, second, third order neurons of descending tracts. Elaborate on the Cross-sectional details of white and gray matter of cervical, thoracic and lumbar segments of Spinal cord for localization of site of lesion.	Human Anatomy	Spinal cord Clinical correlates (Spinal cord)
NS-A-004	Differentiate clearly between upper and lower motor neuron lesions	Human Anatomy	Brainstem
	Location, Relations, Blood supply and external	Human Anatomy	

	features of medulla, pons midbrain. Cross sectional details of white and grey matter of Brain stem (mid brain, pons, medulla) Discuss clinical correlates of brain stem Medial and lateral medullary syndrome Weber syndrome, Benedikt syndrome		
NS-A-005	Location, Relations, Functional classification & Blood supply along with major connections of Cerebellum (Cerebellar Peduncles) Define important clinical correlates	Human Anatomy	Cerebellum
NS-A-006	Identify the Lobes, Sulci & Gyri, Cortical areas. Describe Venous drainage and arterial supply of each lobe	Human Anatomy	Cerebrum
	Describe Functional areas of cerebrum. Draw and Label Homunculus. Define important clinical correlates		
	Describe internal structure of cerebral hemisphere; 1. white matter 2. Basal ganglia 3. Lateral ventricle		
NS-A-007	Describe components & functions of Limbic system & Reticular formation		Limbic system. Reticular formation
NS-A-008	Explain the origin, exit from the brain and intracranial course of cranial nerves Describe the Functional Components and specific functions of each cranial nerve.	Human Anatomy	Cranial nerves
NS-A-009	Identify the Location and sub division of Diencephalon.	Human Anatomy	Diencephalon
NS-A-010	Discuss the Location, Relations, Blood supply, nuclei and major connections of Thalamus, Hypothalamus, Epithalamus, Subthalamus, Metathalamus	Human Anatomy	Thalamus and hypothalamus

	Describe and Illustrate the Hypothalamic and pituitary gland Nuclei with their functions, location afferents. Describe the Hypothalamo-Hypophyseal Portal System Describe the functions of Hypothalamus Explain the anatomical basis for the Thalamic Cauterization, Thalamic Pain, Thalamic Hand and Hypothalamic Disorders		
NS-A-011	Explain the Gross anatomy of Intracranial fossae with intracranial foramina	Human Anatomy	Intracranial fossa
NS-A-012	Explain the attachments, blood supply and nerve supply of the meninges of the brain	Human Anatomy	Meninges
NS-A-013	Discuss the Origin, tributaries & area of drainage, termination of Dural venous sinuses	Human Anatomy	Dural venous sinuses
NS-A-014	Explain the Formation, circulation and absorption into venous system of CSF (Cerebrospinal fluid) Describe ventricular system, Lateral, 3rd & 4th ventricles	Human Anatomy	CSF
NS-A-015	Discuss the Origin, course, branches and distribution of internal carotid artery, vertebral artery Formation, Location, branches and area of supply of Circle of Willis	Human Anatomy	Blood supply of brain & spinal cord
NS-A-016	Explain the Major subdivision of ANS into Sympathetic and parasympathetic nervous system with comparison of anatomical differences.	Human Anatomy	ANS
NS-A-017	Describe the Location, connections and functions of autonomic ganglion	Human Anatomy	Autonomic ganglia
NS-A-018	Explain the origin, termination and branches of the sympathetic chain Localize spinal cord lesions	Human Anatomy	Sympathetic chain
CODE	EMBRYOLOGY & POST-NATAL DEVELOPMENT	TOTAL HOURS=03	

	SPECIFIC LEARNING OUTCOMES	DISCIPLINE	TOPIC
NS-A-019	Explain the Development of Neural tube and Brain vesicles. Discuss related clinical anomalies	Embryology	Neural tube development
NS-A-020	Describe the development of the spinal cord and related clinical anomalies	Embryology	Spinal cord development
NS-A-021	Describe development of Pituitary gland	Embryology	Pituitary gland
CODE	MICROSCOPIC ANATOMY (HISTOLOGY & PATHOLOGY)	TOTAL HOURS = 05	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
NS-A-022	Describe the histological structure of Nervous tissue, Neuron, Nerve fiber, Sensory & motor nerve endings, Neuroglia, Blood brain barrier, ganglia	Histology	Nervous tissue
NS-A-023	Describe the histological structure of the spinal cord	Histology	Spinal cord
NS-A-024	Describe the histological structure of Cerebrum, Cerebellum	Histology	Cerebrum, Cerebellum
			
CODE	HISTOLOGY	TOTAL HOURS = 07	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
NS-A-025	Identify draw & label light microscopic structure of Peripheral nerve sensory ganglia, autonomic ganglia	Histology	CNS
NS-A-026	Identify Draw & label the light microscopic structure of the spinal cord	Histology	Cerebrum
NS-A-027	Identify Draw & label the light microscopic structure of the Cerebrum	Histology	Cerebellum
NS-A-028	Identify Draw & label the light m structure of the Cerebellum	Histology	Spinal Cord

NORMAL FUNCTION			
THEORY			
CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 60	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
NS-P-001	Describe the general organization of nervous system	Medical Physiology	Organization of Nervous System, Neurons and Synapses
	Classify synapses		
	Explain physiological anatomy of synapses		
	Describe the properties of synaptic transmission		
	Classify the substances that act as neurotransmitters		
	Classify all sensory receptors in the body		
	Enumerate the properties of receptors		
	Explain the mechanism of adaptation of receptors		
	Enlist the rapid adapting mechanism of receptors		
NS-P-002	Explain the properties of receptors		Nerve fibers
	Explain the general classification of nerve fibers		
	Explain the numerical classification of nerve fibers		
	Explain Gasser classification of nerve fibers		
	Explain summation and its types		
NS-P-003	Describe the sensory areas of brain		Sensory areas of the brain
	Enlist Brodmann number of sensory areas		
	Describe the effects produced by damage to each sensory area of brain		
	Describe the pathophysiology and features of personal neglect syndrome		
NS-P-004	Classify and explain somatic sensations	Medical Physiology	Somatic sensations
NS-P-005	Enumerate the ascending tracts/Pathways		Ascending Tracts/ pathways
NS-P-006	Name the sensations carried by Dorsal column	Medical	Anterolateral

	medial lemniscus system DCMLS	Physiology	system
	Trace the pathway of DCMLS		
NS-P-007	Classify pain		Pain
	Differentiate between slow pain and fast pain		
	Describe the analgesia system in brain and spinal cord		
	Describe the cause and features of Brown Sequard Syndrome		
NS-P-008	Describe the Physiological anatomy of spinal cord	Medical Physiology	Spinal cord
	Name the anterior motor neurons and their location		
	Explain the Renshaw cells feedback		
	Classify the spinal cord reflexes according to number of synapses		
NS-P-009	Describe the structure & functions of Muscle spindle		Muscle Spindle and stretch reflex
	Trace the reflex arc of stretch reflex		
	Discuss the clinical significance of stretch reflex		
NS-P-110	Define tone and how it is maintained		Tone
NS-P-011	Trace the reflex arc of Golgi Tendon Organ GTO, Golgi tendon reflex Explain the importance of Golgi tendon reflex		GTO
NS-P-012	Name the motor areas of brain		Motor areas of the brain
	Enlist Brodmann number of motor areas of brain		
	Explain the features produced due to damage to the motor areas		
NS-P-013	Enlist the functions of brain stem	Medical Physiology	Brainstem
NS-P-014	Enumerate the descending tracts		Descending tracts
	Describe the functions of Pyramidal tract		
	Describe the effect of lesions in motor cortex of brain or pyramidal tract		

NS-P-015	Discuss the location of upper and lower motor neuron		Location of motor neurons
	Explain the features of upper motor neuron lesion		
	Explain the features of lower motor neuron lesions		
NS-P-016	Define spinal shock	Medical Physiology	Spinal shock and hemi section
	Enumerate and explain the stages of spinal shock		
	Describe the features of hemi section of spinal cord (at the level, above the level, below the level)		
NS-P-017	Name the functional parts of cerebellum		Cerebellum
	Explain the functions of spinocerebellum		
	Describe the functions of cerebro cerebellum		
	Discuss the functions of vestibule cerebellum		
	Explain the clinical features of cerebellar disease		
NS-P-018	Name the components of Basal ganglia		Basal Ganglia
	EXPLAIN the putamen and caudate circuits		
	Enlist the neurotransmitters in basal ganglia and enlist the functions of basal ganglia		
	Enumerate and explain the clinical abnormalities of putamen circuit		
	Explain the pathophysiology and features of Huntington's disease		
	Explain the types of rigidity		
	Differentiate spasticity and rigidity		
	Define decerebrate rigidity		
NS-P-019	Enumerate the components of vestibular Apparatus	Medical Physiology	Vestibular apparatus
	Name the sensory organs of vestibular apparatus		
	Describe the role of vestibular Apparatus in maintenance of linear and angular equilibrium		
NS-P-020	Enlist the components of limbic system		Limbic system
	Describe the functions of amygdala		

	Explain the effects of bilateral ablation of the amygdala—The Klüver-Bucy Syndrome		
	Explain the functions of hippocampus		
	Explain the functions of Hypothalamus		
	Explain Functions of Thalamus		
	Discuss the Thalamic syndrome		
NS-P-021	define brain stem reticular formation (BRF), name the neurotransmitters of BRF, enlist functions of BRF, differentiate between the functions of Pontine and medullary reticular Formation	Medical Physiology	Brain stem reticular formation
NS-P-022	Enumerate and discuss the physiological basis of Electroencephalogram EEG waves	Medical Physiology	EEG
NS-P-023	Explain the types of sleep		Sleep
	Discuss the stages of slow wave sleep		
	Explain the changes in EEG during sleep wake cycle		
	Enumerate the areas and hormones/ neurotransmitters involved in sleep		
	Describe sleep disorders (narcolepsy, cataplexy, insomnia, somnolence, somnambulism, bruxism, nocturnal enuresis and sleep apnea)		
NS-P-024	Enumerate different types of epilepsy		Epilepsy
	Explain the features and physiological basis and EEG waves in different types of epilepsy		
NS-P-025	Define memory		Memory
	Classify memory on the basis of duration and information stored		
	Explain the Molecular Mechanism of Intermediate Memory		
	Enumerate the structural changes of long-term memory		
	Explain the higher intellectual functions of prefrontal	Medical	

	association cortex	Physiology		
	Explain the mechanism of consolidation of memory			
	Explain retrograde and anterograde amnesia			
	Explain the physiological basis and features of Alzheimer’s disease			
NS-P-026	Enlist the areas of speech			Speech
	Explain the functions of motor and sensory areas of speech			
	Trace and explain the pathway of written and heard speech			
	Enlist the abnormalities of speech			
	Explain the features of motor aphasia			
	Elaborate the features of sensory aphasia			
	Define dyslexia, alexia, agraphia			
NS-P-027	Discuss Components of Autonomic nervous system	Medical Physiology	ANS	
	Explain the physiological anatomy of sympathetic and parasympathetic nervous system			
	Describe the types of adrenergic and cholinergic receptors			
	Explain the effects of sympathetic and parasympathetic on various organs/ system of body			
CODE	MEDICAL BIOCHEMISTRY	TOTAL HOURS = 20		
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC	
NS-B-001	Explain the digestion and absorption of lipids with enzymes involved in it. Discuss role of bile acids and salts in lipid digestion and absorption	Medical Biochemistry	Digestion and absorption of lipids	
NS-B-002	Explain the concept of lipid transport and storage		Lipid transport and storage	

NS-B-003	Discuss the reactions of beta-oxidation, alpha and omega oxidation of unsaturated and saturated fatty acids Calculate energy yield from palmitate in oxidation		Sphingolipidosis
NS-B-004	Discuss role of carnitine shuttle		Carnitine shuttle
NS-B-005	Discuss the role of citrate shuttle in fatty acid synthesis		Citrate shuttle
NS-B-006	Explain the pathway of fatty acid synthesis and its regulation Explain the steps of the reactions of hepatic ketogenesis and regulation		Fatty acid synthesis
NS-B-007	Describe utilization of ketone bodies by extrahepatic tissue. Describe the Synthesis and degradation of phospholipids and sphingolipids interpret the disorders related to enzyme deficiencies.		Metabolism of phosphor and sphingolipids
NS-B-008	Discuss the metabolism of glycolipids interpret the disorders related to enzyme deficiencies.		Glycolipid metabolism
NS-B-009	Explain fast feed cycle with reference to pathways activated and suppressed in each tissue in starved and fed state Discuss integration of metabolism	Medical Biochemistry	Fast feed cycle
NS-B-010	Explain fast. Discuss the structure, biochemical function and metabolism, dopamine, serotonin, histamine, GABA Correlate the biochemical functions of these neurotransmitters with their deficiency diseases		Neurotransmitters
NS-B-011	Explain proto-oncogene and oncogene concept.		Oncogene
NS-B-012	Discuss tumor markers and their significance.		Tumor markers

NS-B-013	Explain the role of genetics in cancers especially breast, ovary, lung and colon.		Cancer
NS-B-014	Discuss the concept of xenobiotics.		Xenobiotics

PRACTICAL

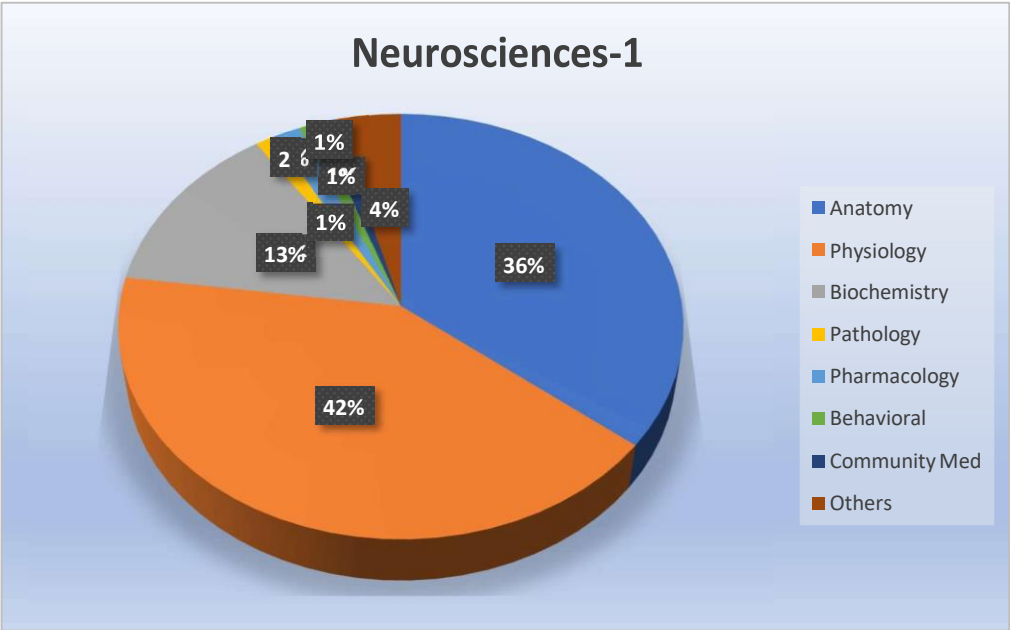
CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 14	
		DISCIPLINE	TOPIC
NS-B-015	Interpret the lysosomal storage diseases on given data Neiman pick disease, Gaucher's disease etc.	Biochemistry Practical	Data Interpret
NS-B-016	Perform the estimation of triglycerides by kit method		Triglycerides estimation
NS-P-028	Examine the Sensory System	Physiology Practical	Sensory system
NS-P-029	Examine the Superficial Reflexes		Superficial Reflexes
NS-P-030	Examine the Deep Reflexes		Deep Reflexes
NS-P-031	Demonstrate Cerebellar Function Test		Cerebellar Tests
NS-P-032	Demonstrate the testing of Cranial Nerve (CN) VII		CN VII
NS-P-033	Demonstrate the Testing of Cranial Nerves (XI, XII)		CN X, XI, XII
NS-P-034	Examine the Motor system		Motor system

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 05	
		DISCIPLINE	TOPIC
NS-Ph-001	1.Classify various opioid receptors 2.Describe Mechanism of Action (MOA), pharmacological actions, clinical uses and adverse effects of opioid agonist, mixed agonist -antagonist and antagonist	Pharmacology	Opioids
NS-Ph-002	1.Classify various CNS stimulants and depressants 2.Describe MOA, pharmacological actions, clinical uses and adverse effects of CNS stimulant and		CNS stimulants & depressants

	depressants		
NS-Pa-001	Define cerebral vascular accident (CVA). Discuss the etiology and morphological changes of Cerebrovascular accidents	Pathology	CVA
NS-Pa-002	Define Meningitis Identify types of meningitis		Meningitis
DISEASE PREVENTION AND IMPACT			
CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 10	
		DISCIPLINE	TOPIC
NS-CM-001	Students should be able to depict the depth of problem in context of mental illnesses	Community Medicine and Public Health	Epidemiology of Mental Disorders
NS-CM-002	Able to learn the general approach to prevent mental illnesses at community level		Community based interventions for Mental Illnesses
NS-BhS-001	Explain the theoretical basis of classic conditioning, operant conditioning and observational learning with examples in medical practice Incorporate learning principles to help prepare people for medical interventions	Behavioral Sciences	Learning and Behavior
NS-BhS-002	Outline the structure of memory and explain the distinction between short- and long-term memory. Describe memory improvement techniques and how the appropriate ones will help patients recall long and complex explanations		Memory
NS-M-001	Identify various types of CVA (cerebrovascular accident) Describe various symptoms and signs Outline management strategies	Medicine	Stroke/CVA
NS-S-001	Discuss the role of surgery in stroke	Surgery	Stroke/CVA
NS-M-002	Define Epilepsy Enlist various types of epilepsy Identify various symptoms and signs Outline management strategies	Medicine	Epilepsy

NS-M-003	Enlist various types of meningitis Describe symptoms and signs Outline management strategies	Medicine/ Neurology	Meningitis
NS-S-002	Describe triage in ER Emergency Room	Surgery	Head injury
NS-S-003	Identify the various types of hematomas	Neurosurgery	Hematoma/ CVA
NS-Pe-001	Describe the clinical features of Cerebral Palsy	Pediatrics	Cerebral Palsy
AGING			
CODE	THEORY	TOTAL HOURS = 01	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
NS-Ag-001	Define dementia	Medicine	Dementia
	Discuss various causes for dementia		
	Discuss various risks for dementia		
	Outline management strategies		



Module Weeks	Recommended Minimum Hours
07	171



Queens Medical College, Kasur
Timetable 2nd Year MBBS (Session-2024-25) – Neurosciences 1 Module

Week 1:

	8:00 - 9:15	9:15- 10:00	10:00-10:45		11:15-12:00	12:00- 12:45	12:45-1:30	1:30-3:00
Monday	Gross Anatomy - Tutorial NS-A-011 Intracranial Fossa with Foramina Batch-A Batch-B Batch-C		Embryology-LGIS NS-A-019-a Neural Tube Development	B	PHYSIOLOGY LGIS NS-P-001 Topic: General organisation of nervous system	BIOCHEMISTRY LGIS NS-B-001 Topic: Digestion and Absorption of lipids	PHYSIOLOGY LGIS NS-P-001 Topic: classify synapses	Gross Anatomy-Audiovisual Demonstration NS-A-001 Organisation of Nervous System with Functions of components
Tuesday	PRACTICAL Batch 1: Histology NS-A-025-a Peripheral Nerve (Dr. Mahwish) Batch 2: Physiology Superficial Reflex(Dr. Arooj) Batch 3: Biochemistry: NS-B-015 Interpret Lysosomal storage diseases s (Dr. Taimoor) Batch 4: CSF	BEHAVIOURAL SCIENCES NS-BhS-001 Classical conditioning	PERL SGIS PERL-2-21 Literature Review Structuring,academic writing, Plagiarsim	R	PHYSIOLOGY LGIS NS-P-001 Topic: Properties of synapses	Gross Anatomy-Audiovisual Demonstration NS-A-002 Spinal Nerves & Blood Supply of Spinal Cord	Embryology-LGIS NS-A-020 Development of Spinal Cord	SGIS Batch A: Gross Anatomy NS-A-013 Dural Venous Sinuses with clinicals (Batch B: : Physiology Block-5 paper discussion(Dr. Saima) Batch C: Biochemistry: Revision
Wednesday	PRACTICAL Batch 4: Histology NS-A-025-a Peripheral	Microscopic Anatomy-LGIS NS-A-022-a	PHYSIOLOGY LGIS NS-P-001	E	PHYSIOLOGY LGIS NS-P-002	BIOCHEMISTRY LGIS NS-B-002	Gross Anatomy-Audiovisual Demonstration NS-A-003-a	SGIS Batch C: Gross Anatomy NS-A-013 Dural Venous

	Nerve (Dr. Mahwish) Batch 1 : Physiology Superficial reflex (Dr. Saima) Batch 2: Biochemistry: NS-B-015 Interpret Lysosomal storage diseases (Dr. Taimoor) Batch 3: CSF		Topic: properties of neurotransmitter		Topic; properties of receptors	Topic: Lipid transport and storage	Cross sectional details of white & grey matter in Cervical, Thoracic & Lumbar segments of Spinal Cord with lesions	Sinuses with clinicals (Batch A : Physiology Block-5 paper discussion) Batch B: Biochemistry: Revision ()
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Thursday	PRACTICAL Batch 3: Histology NS-A-025-a Peripheral Nerve () Batch 4: Physiology Superficial reflex () Batch 1: Biochemistry: NS-B-015 Interpret Lysosomal storage diseases () Batch 2: CSF	Microscopic Anatomy-LGIS NS-A-022-b Histological features of Nerve fiber, Sensory & Motor nerve endings	Gross Anatomy-Audiovisual Demonstration NS-A-014-a CSF	A	PHYSIOLOGY LGIS NS-P-002 Topic: Classification of nerve fibres	BIOCHEMISTRY LGIS NS-B-003 Topic: Beta oxid;., alpha and omega oxid: of unsaturated and saturated F.A	COMM- MED LGIS NS-CM-xxx Topic Epidemiology of Mental Disorders	SGIS Batch B: Gross Anatomy NS-A-013 Dural Venous Sinuses with clinicals (Batch C: Physiology Block-5 paper discussion () Batch A: Biochemistry: Revision ()	
	8:00- 9:00	9:00- 9:40	9:40- 10:20		10:30-11:10	11:10-11:50	11:50-12:30`	12:30-2:00	2:00-3:00
Friday	PRACTICAL Batch 2: Histology NS-A-025-a Peripheral Nerve () Batch 3: Physiology Superficial reflex Batch 4: Biochemistry: NS-B-015 Interpret Lysosomal storage diseases (Batch 1: CSF	PATHOLOGY-LGIS NS-A-xxx Cerebral vascular accident (CVA). etiology &morphological changes of CVA	PHARMA - LGIS NS-P-xxx -Opioids	K	BIOCHEMISTRY LGIS NS-P-004 Topic: Carnitine Shuttle	Microscopic Anatomy-LGIS NS-A-022-c Sensory & Autonomic Ganglia Blood Brain Barrier	Gross Anatomy-Audiovisual Demonstration NS-A-014-b Ventricular System	Self Directed Learning	

Week 2:

	8:00 - 9:15	9:15- 10:00	10:00-10:45	10:45-11:15	11:15-12:00	12:00- 12:45	12:45-1:30	1:30-3:00
Monday	Gross Anatomy-Audiovisual Demonstration NS-A-006-a Lobes, sulci, gyri & cortical areas (Superolateral Surface of Cerebrum)	Gross Anatomy-Audiovisual Demonstration NS-A-006-b Lobes, sulci, gyri & cortical areas (Medial Surface of Cerebrum)	Microscopic Anatomy-LGIS NS-A-023 Spinal Cord	B	PHYSIOLOGY LGIS NS-P-002 Topic: General classification on nerve fibre	BIOCHEMISTRY LGIS NS-B-005 Topic: Role of Citrate shuttle in fatty acid synthesis	PHYSIOLOGY LGIS NS-P-002 Topic: summation and its type	Gross Anatomy-Audiovisual Demonstration NS-A-006-c Lobes, sulci, gyri & cortical areas (Basal Surface of Cerebrum)
Tuesday	PRACTICAL Batch 1: Histology NS-A-025-b Sensory & Autonomic Ganglia () Batch 2: Physiology Deep reflex Batch 3: Biochemistry Esti: of Triglyceride by kit method () Batch 4: CSF	BEHAVIOURAL SCIENCES NS-BhS-001 Operant conditioning	PERL LGIS PERL-2-22 Literature Review Poster	R	PHYSIOLOGY LGIS NS-P-003 Topic: Sensory areas of brain	Gross Anatomy-Audiovisual Demonstration NS-A-006-e Functional areas of frontal & parietal lobes	Gross Anatomy-Audiovisual Demonstration NS-A-006-f Functional areas of temporal & occipital lobes	SGIS Batch A: Gross Anatomy NS-A-006-k Lateral Ventricle & its clinicals Batch B: : Physiology Sensory receptors Batch C: Biochemistry: Dig: and absor: of lipids, Lipid transport and storage ()
Wednesday	PRACTICAL Batch 4: Histology NS-A-025-b Sensory & Autonomic Ganglia () Batch 1 : Physiology	Gross Anatomy-Audiovisual Demonstration NS-A-006-d Blood Supply of cerebrum	PHYSIOLOGY LGIS NS-P-004 Topic: Somatic Sensation	E	PHYSIOLOGY LGIS NS-P-005 Topic: Event of ascending tract	BIOCHEMISTRY LGIS NS-B-006 Topic: Fatty acid synthesis and its	Embryology-LGIS NS-A-019-b Development of Brain Vesicle	SGIS Batch C: Gross Anatomy NS-A-006-k Lateral Ventricle & its clinicals () Batch A : Physiology

	Deep reflex Batch 2: Biochemistry Esti: of Triglyceride by kit method Batch 3: CSF					Regulation Teacher:		Sensory receptors Batch B: Biochemistry: Dig: and absor: of lipids, Lipid transport and storage
Thursday	PRACTICAL Batch 3: Histology NS-A-025-b Sensory & Autonomic Ganglia Batch 4: Physiology Deep reflex Batch 1: Biochemistry Esti: of Triglyceride by kit method Batch 2: CSF	Gross Anatomy - Audiovisual Demonstration NS-A-006-h Internal structure of cerebral hemisphere: White Matter Dr. Hanif	Gross Anatomy - Audiovisual Demonstration NS-A-006-i Internal Capsule Dr. Hanif	A	PHYSIOLOGY LGIS NS-P-006 Topic: Sensation caused by dorsal column	BIOCHEMISTRY LGIS NS-B-006 Topic: Reactions of hepatic ketogenesis and regulation	COMM- MED LGIS NS-CM-xxx Topic Epidemiology of Mental Disorders	SGIS Batch B: Gross Anatomy NS-A-006-k Lateral Ventricle & its clinicals Batch C: Physiology Sensory receptors Batch A: Biochemistry: Dig: and absor: of lipids, Lipid transport and storage
	8:00- 9:00	9:00- 9:40	9:40- 10:20		10:30-11:10	11:10-11:50	11:50-12:30`	12:30-1:00 1:00-03:00
Friday	PRACTICAL Batch 2: Histology NS-A-025-b Sensory & Autonomic Ganglia (Dr. Mahwish) Batch 3: Physiology Deep reflex (Dr.Saima, Dr. Usama) Batch 4: Biochemistry Esti: of Triglyceride by kit method (Dr. Taimoor) Batch 1: CSF	PATHOLOGY- LGIS NS-A-xxx Meningitis & its types + diagnosis Dr Iftikhar	PHARMA - LGIS CNS CNS Stimulants/Depressants Dr Noor ul Ain	K	BIOCHEMISTRY LGIS NS-P-007 Topic: Utilization of ketone bodies by extrahepatic tissues Teacher: Prof. Dr. Bushra	Gross Anatomy - LGIS NS-A-006-g Homunculus & clinicals of cerebrum Dr. Anwaar	Gross Anatomy - LGIS NS-A-006-j Basal Ganglia with clinicals Dr. Hanif	Self Directed Learning

Week 3:

	8:00 - 9:15	9:15- 10:00	10:00-10:45	10: 45- 11: 15	11:15-12:00	12:00- 12:45	12:45-13:30	1:30-03:00
Monday	PROBLEM BASED LEARNING SGIS Batches 1,2,3,4		Gross Anatomy - Audiovisual Demonstration NS-A-004-b Medulla Oblongata	B	PHYSIOLOGY LGIS NS-P-007 Topic: Brown sequard syndrome	BIOCHEMISTRY LGIS NS-B-007 Topic: Synthesis and degradation of phospholipids and sphingolipids	PHYSIOLOGY LGIS NS-P-008 Topic: Physiological Anatomy of Sp+ reflexes	Gross Anatomy - Audiovisual Demonstration NS-A-004-c Pons
Tuesday	PRACTICAL Batch 1: Histology NS-A-026 & 27 Cerebrum & Cerebellum Batch 2: Physiology Patellar / Ankle clonus (Batch 3: Biochemistry Revision of Practical BLOCK-IV Batch 4: PBL Session 2	BEHAVIOURAL SCIENCES NS-BhS-001 observational learning	PERL SGIS NS-PERL-2-19 Reflection and Feedback Techniques of receiving feedback	R	PHYSIOLOGY LGIS NS-P-009 Topic: Muscle spindle	Gross Anatomy - Audiovisual Demonstration NS-A-004-d Midbrain	Gross Anatomy - Audiovisual Demonstration NS-A-004-e Cross sectional details of white & grey matter of brainstem	SGIS Batch A: Gross Anatomy NS-A-005-a & b Cerebellum with clinicals Batch B: : Physiology Sensory area of brain Batch C: Biochemistry: Shuttles, F.A synthesis, ketogenesis and regulation, utilization of ketone body Block-II OSPE Revision

Wednesday	PRACTICAL Batch 4: Histology NS-A-026 & 27 Cerebrum & Cerebellum Batch 1 : Physiology Patellar/ Ankle clonus Batch 2: Biochemistry Revision of Practical BLOCK-IV Batch 3: PBL Session 2	Gross Anatomy - LGIS NS-A-003-b & d Sensory nerve endings, Ascending Tracts of Spinal Cord	PHYSIOLOGY LGIS NS-P-010 Topic: Golgi tendon Organ	E	PHYSIOLOGY LGIS NS-P-012 Topic: Motor area of brain	BIOCHEMISTRY LGIS NS-B-007 Topic: Disorders related to enzyme deficiency	Gross Anatomy - LGIS NS-A-003-b & d Ascending Tracts of Spinal Cord	SGIS Batch C: Gross Anatomy NS-A-005-a & b Cerebellum with clinicals (Dr. Mahrukh) Batch A : Physiology Sensory area of brain Dr. Abdullah Batch B: Biochemistry: Shuttles, F.A synthesis, ketogenesis and regulation, utilization of ketone body (Dr. Mayyam) Block-II OSPE Revision	
Thursday	PRACTICAL Batch 3: Histology NS-A-026 & 27 Cerebrum & Cerebellum Batch 4: Physiology Patellar / Ankle clonus Batch 1: Biochemistry Revision of Practical BLOCK-IV Batch 2: PBL Session 2	Gross Anatomy - LGIS NS-A-003-b & d Descending Tracts of Spinal Cord	Gross Anatomy - LGIS NS-A-003-c Nuclear organisation at different levels of spinal cord	A	PHYSIOLOGY LGIS NS-P-013 Topic: Fs of brain stem	BIOCHEMISTRY LGIS NS-B-008 Topic: Metabolism of Glycolipids & disorders related to enzyme deficiency	COMM- MED LGIS NS-CM-xxx Topic Community based interventions for Mental Illnesses	SGIS Batch B: Gross Anatomy NS-A-005-a & b Cerebellum with clinicals Batch C: Physiology Sensory area brain Batch A: Biochemistry: Shuttles, F.A synthesis, ketogenesis and regulation, utilization of ketone body Block-II OSPE Revision	
	8:00- 9:00	9:00- 9:40	9:40- 10:20		10:30-11:10	11:10-11:50	11:50-12:30`	12:30- 1:00	1:00- 3:00
Friday 15 nov	PRACTICAL Batch 2: Histology NS-A-026 & 27 Cerebrum &	PATHOLOGY- LGIS Case discussion CVA	PHARMA - LGIS NS-P-xxx Prostaglandin Analouges	K	PHYSIOLOGY LGIS NS-P-010 Topic: Define Tone+	Gross Anatomy - Audiovisual Demonstration NS-A-004-f Clinical Correlates of	Gross Anatomy - SGD NS-A-003-d Draw & Label Transverse Section of Spinal Cord	Self Directed Learning	

	Cerebellum Batch 3: Physiology Patellar / Ankle clonus Batch 4: Biochemistry Revision of Practical BLOCK-IV Batch 1: PBL Session 2	Topic			Brain stem	Brain Stem		
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Week 4:

	8:00 - 9:15	9:15- 10:00	10:00-10:45	10:45-11:15	11:15-12:00	12:00- 12:45	12:45-1:30	1:30-3:00
Monday	ANATOMY TEST		Gross Anatomy-LGIS NS-A-003-d Ascending Tracts (Anterolateral Column)	B	PHYSIOLOGY LGIS NS-P-014 Topic: Fs of pyramidal tract	BIOCHEMISTRY LGIS NS-B-009 Topic: Fast Feed cycle	PHYSIOLOGY LGIS NS-P-014 Topic: Effect of lesion in motor cortex	Gross Anatomy - Audiovisual Demonstration NS-A-004-a Upper & Lower Motor Neuron Lesions
Tuesday	PRACTICAL Batch 1: Histology NS-A-026 Spinal Cord Batch 2: Physiology Fs of cerebellum Batch 3: Biochemistry Revision of Practical BLOCK-V Batch 4: CSF	BEHAVIOURAL SCIENCES NS-BS-002 Memory	PERL LGIS PERL-2-20 Student Membership societies	R	PHYSIOLOGY LGIS NS-P-015 Topic: Upper and lower motor lesion	Gross Anatomy - LGIS NS-A-003-d Spinal Nerve Nuclei	Gross Anatomy - Audiovisual Demonstration NS-A-008-a Cranial Nerves	SGIS Batch A: Gross Anatomy NS-A-009 Diencephalon Batch B: : Physiology Muscle spindle golgi tendon Batch C: Biochemistry: Metabolism of glycolipids, Fast feed cycle, Neurotransmitter Block-II OSPE Revision
Wednesday	PRACTICAL Batch 4: Histology NS-A-026 Spinal Cord Batch 1 : Physiology Fs of cerebellum Batch 2: Biochemistry Revision of Practical BLOCK-V Batch 3: CSF	Gross Anatomy - Audiovisual Demonstration NS-A-008-b Cranial Nerves	PHYSIOLOGY LGIS NS-P- 016 Topic: Spinal shock	E	PHYSIOLOGY LGIS NS-P-017 Topic: Fs of Cerebellum	BIOCHEMISTRY LGIS NS-B-10 Topic: Dis: Stru, Biochem: func: & metab: Dopamin, Serotonin, histamin, GABA	Gross Anatomy - Audiovisual Demonstration NS-A-008-b Cranial Nerves	SGIS Batch C: Gross Anatomy NS-A-009 Diencephalon Batch A : Physiology Muscle spindle golgi tendon Batch B: Biochemistry: Metabolism of glycolipids, Fast feed cycle, Neurotransmitter Block-II OSPE Revision

Thursday	PRACTICAL Batch 3: Histology NS-A-026 Spinal Cord Batch 4: Physiology Fs of cerebellum Batch 1: Biochemistry Revision of Practical BLOCK-V Batch 2: CSF	Gross Anatomy - Audiovisual Demonstration NS-A-010-a Thalamus (Location, Relations, Blood supply, and Nuclei)	Gross Anatomy - Audiovisual Demonstration NS-A-010-b Thalamus (Major Connections & Clinicals, Thalamic Cauterization, Thalamic Pain, Thalamic Hand)	A	PHYSIOLOGY LGIS NS-P-017 Topic: Clinical features of cerebellum	BIOCHEMISTRY LGIS NS-B-010 Topic: Biochem: function of Neurotransmitter with their deficiency disease	COMM- MED LGIS NS-CM-xxx Topic Community based interventions for Mental Illnesses	SGIS Batch B: Gross Anatomy NS- A-009 Diencephalon Batch C: Physiology Muscle spindle golgi tendon(Batch A: Biochemistry: Metabolism of glycolipids, Fast feed cycle, Neurotransmitter Block-II OSPE Revision	
	8:00- 9:00	9:00- 9:40	9:40- 10:20		10:30-11:10	11:10-11:50	11:50-12:30`	12:30-1:00	1:00-3:00
Friday	PRACTICAL Batch 2: Histology NS-A-026 Spinal Cord (Batch 3: Physiology Fs of cerebellum Batch 4: Biochemistry Revision of Practical BLOCK-V () Batch 1: CSF	PATHOLOGY- LG NS-A-xxx Case discussion Meningitis	PHARMA - LGIS NS-P-xxxAnti Inflammatory Drugs	K	PHYSIOLOGY LGIS NS-P-018 Topic: Basal Ganglia	Gross anatomy - Audiovisual Demonstration NS-A-010-c Hypothalamus (Location, Relations, Blood supply, and Nuclei)	Gross Anatomy - Audiovisual Demonstration NS-A-010-d Hypothalamus (Major Connections, Functions & Clinicals)	Self Directed Learning	

Week 5:

	8:00 - 9:15	9:15- 10:00	10:00-10:45	10:45-11:15	11:15-12:00	12:00- 12:45	12:45-13:30	1:30-3:00
Monday	PHYSIOLOGY TEST		Gross Anatomy - Audiovisual Demonstration NS-A-010-e Epithalamus	B	PHYSIOLOGY LGIS NS-P-018 Topic: Basal Ganglia	BIOCHEMISTRY LGIS NS-B-011 Topic: Explain proto-oncogene & Oncogene	PHYSIOLOGY LGIS NS-P-012 Topic: Enlist the fs of brain stem	Gross Anatomy - Audiovisual Demonstration NS-A-010-f Hypothalamic & Pituitary Nuclei, Hypothalamo Hypophyseal Portal System
Tuesday	PRACTICAL Batch 1: Histology OSPE Test (Neurosciences-I Module) (Batch 2: Physiology Epilepsy and EEG (Batch 3: Biochemistry: Revision of Practicals (Batch 4: CSF	BEHAVIOURAL SCIENCES NS-BhS-001 Learning techniques for medical interventions	PERL SGIS PERL-2-17 Appropriate verbal & non verbal communication grounded in culture and context	R	PHYSIOLOGY LGIS NS-P-014 Topic: Fs of pyramidal tract	Microscopic Anatomy - LGIS NS-A-024 Cerebrum & Cerebellum	Embryology - LGIS NS-A-021 Development of Pituitary Gland	SGIS Batch A: <u>Tutorial-II</u> Functional areas of Cerebrum with clinicals (Batch B: Physiology Memory Batch C: Biochemistry: Fast feed cycle & Neurotransmitter Block-II OSPE Revision

Wednesday	PRACTICAL Batch 4: Histology OSPE Test (Neurosciences-I Module) (Batch 1 : Physiology Epilepsy and EEG (Batch 2: Histology Viva (Neurosciences-I Module) Biochemistry: Revision of Practicals () Batch 3: CSF	Gross Anatomy - Audiovisual Demonstration NS-A-015-a Vertebral & Internal Carotid Arteries	PHYSIOLOGY LGIS NS-P-018 Topic:clinical abnormalities of B.G	E	PHYSIOLOGY LGIS NS-P-023 Topic: Sleep	BIOCHEMISTRY LGIS NS-B-012 Topic: Discuss Tumor markers & their significance, Role of genetics in cancers especially breast, ovary, lungs, colon	Gross Anatomy - Audiovisual Demonstration NS-A-016 ANS	SGIS Batch C: <u>Tutorial-II</u> Functional areas of Cerebrum with clinicals Batch A : Physiology Memory () Batch B: Biochemistry: Fast feed cycle & Neurotransmitter Block-II OSPE Revision	
Thursday	PRACTICAL Batch 3: Histology OSPE Test (Neurosciences-I Module) (Dr. Mahrukh & Dr. Mehwish) Batch 4: Physiology Epilepsy and EEG (Dr. Saima) Batch 1: Biochemistry: Revision of Practicals (Batch 2: CSF	Gross Anatomy - Audiovisual Demonstration NS-A-017 Autonomic Ganglion	Gross Anatomy - Tutorial-III All the diagrams of Brainstem	A	PHYSIOLOGY LGIS NS-P-020 Topic: Limbic system	PATHOLOGY-LGIS NS-A-xxx Acute Inflammation Types and Causes	Gross Anatomy - Tutorial-IV Cerebellum & Its Clinicals	SGIS Batch B: <u>Tutorial-II</u> Functional areas of Cerebrum with clinicals (Dr. Awais, Dr. Mariyam & Dr. Mahrukh) Batch C: Physiology Memory Batch A: Biochemistry: Fast feed cycle & Neurotransmitter Block-II OSPE Revision	
	8:00- 9:00	9:00- 9:40	9:40- 10:20		10:30-11:10	11:10-11:50	11:50-12:30`	12:30-1:00	1:00-3.00
Friday	PRACTICAL Batch 2: Histology OSPE Test (Neurosciences-I Module) (.) Batch 3: Physiology Epilepsy and EEG (Batch 4: Biochemistry: Revision of Practicals (	PATHOLOGY-LGIS NS-A-xxx Acute Inflammation Mediators	PHARMA - LGIS NS-P-xxx Pharmacological effects, Mechanism of Action, Uses, Adverse effects of Non Steroidal Anti Inflammatory drugs	K	PHYSIOLOGY LGIS NS-P- 020 Topic: Fs of hypothalamus	Gross Anatomy - Audiovisual Demonstration NS-A-018 Sympathetic Chain & Spinal Cord Lesions		Self Directed Learning	

Week 6:

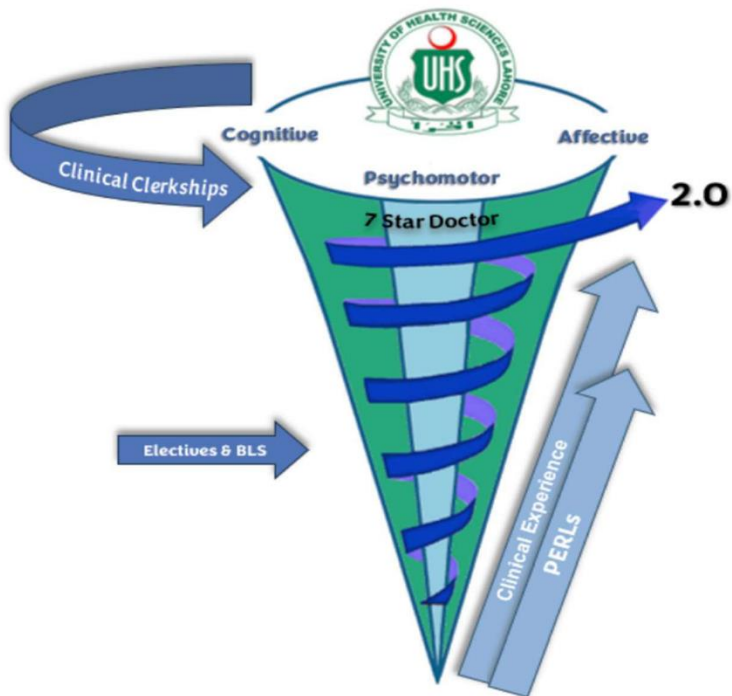
	8:00 - 9:15	9:15- 10:00	10:00-10:45		11:15-12:00	12:00- 12:45	12:45-1:30	1:30-3:00
Monday	BIOCHEMISTRY TEST	ANATOMY LGIS NS-A-xxx	Pathology LGIS In-Pa-xxx Inflammation Vascular and Cellular Events	B	PHYSIOLOGY LGIS NS-P-xxx Topic	BIOCHEMISTRY LGIS NS-B-014 Topic: Discuss the concept of Xenobiotics	PHYSIOLOGY LGIS NS-P-xxx Topic	Practical Batch A: Anatomy Batch B: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch C:Pharmacology
Tuesday	ANATOMY DISSECTION NS-A-xxx	BEHAVIOURAL SCIENCES NS-Bhs-002 Memory techniques in clinical interventions	PERL LGIS In-PERL-2-018 Rapport building Basics of Negotiation	R	PHYSIOLOGY LGIS NS-P-xxx Topic	ANATOMY DISSECTION NS-A-xxx Topic	Pathology in-Pa-xxx Inflammation Vascular and Cellular Events	Practical Batch B: Anatomy Batch C: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch A: Pharmacology
Wednesday	PATHOLOGY - LGIS In-Pa-xxx Outcome of acute inflammation & its morphological types	BEHAVIOURAL SCIENCES Inn-Bhs-001 Stress and Inflammation Correlation	PHARMA - LGIS In-Ph-xxx Topic	B	PATHOLOGY LGIS In-Pa-xxx Chronic Inflammation Types and Cells	COMM- MED LGIS In-CM-xxx Topic	Embryology-LGIS In-A-xxx Topic	Practical Batch C: Anatomy Batch A: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch B:Pharmacology
Thursday	PATHOLOGY - LGIS In-Pa-xxx Normal growth & cell cycle	Embryology-LGIS In-A-xxx Topic	COMM- MED LGIS In-CM-xxx Topic	R	PHARMA - LGIS In-Ph-xxx Topic Teacher	COMM- MED LGIS In-CM-xxx Topic		PATHOLOGY-LGIS In-Pa-xxx Repair & Healing Defects of healing Topic Teacher



MODULE NO. 11:

INFLAMMATION

MODULAR INTEGRATED CURRICULUM 2K23 *version 2.0*



MODULE RATIONALE

The objective of teaching inflammation to undergraduate students is to impart knowledge about cellular and molecular mechanisms of cell injury, inflammation, and repair. This understanding serves as the foundation for comprehending most disease processes within the body. It equips students to apply this knowledge in the clinical field when working with real-life patients.

MODULE OUTCOMES

- Define inflammation and describe its fundamental characteristics.
- Explain the cellular and molecular mechanisms that underlie the inflammatory response.
- Differentiate between acute and chronic inflammation
- Discuss the physiological role of inflammation in tissue repair and host defense.
- Identify how dysregulated inflammation contributes to the pathogenesis of various diseases.
- Describe the key inflammatory mediators, including cytokines, chemokines, and prostaglandins.
- Illustrate the signaling pathways involved in the initiation and resolution of inflammation.
- Recognize the roles of different immune cells (e.g., neutrophils, macrophages, lymphocytes) in the inflammatory response.
- Discuss the pharmacological aspects of steroidal and non-steroidal anti-inflammatory drugs
- Discuss the clinical aspects of inflammation.

THEMES

- Role of inflammation in embryology
- Inflammatory response and role of leukocytes
- Eicosanoids
- Acute inflammation
- Chronic inflammation
- Cell repair
- Prostaglandin analogues
- Anti-inflammatory drugs
- Steroidal anti-inflammatory drugs

- Non-steroidal anti-inflammatory drugs
- COX- inhibitors
- Histamines and antihistamines
- Communicable diseases and their prevention
- Psychological stress and inflammation
- Aging

CLINICAL RELEVANCE

- Inflammation, in medical terminology, refers to a collection of classical signs and symptoms, such as edema, erythema, increased warmth, pain, and loss of function.
- It represents a complex and dynamic series of responses to tissue injury, primarily triggered by toxic chemicals, environmental factors, trauma, overuse, or infection.
- Diseases in which inflammation plays a predominant pathological role are typically denoted by the suffix 'itis,' examples of which include encephalitis and meningitis.

IMPLEMENTATION TORs

- The time calculation for completion of modules and blocks is based on 35 hours per week. Total hours of teaching, learning and formative/summative internal assessment to be completed in a year are 1200.
- The hours mentioned within each module are the mandatory minimum required. The rest of the hours are left to the discretion of the institution that can be used in teaching, learning and assessment as per decision of the institutional academic council.
- The content and the intended learning outcomes written are mandatory, to be taught, at the level required, as the end year assessment will be based on these.
- However, the level of cognition can be kept at a higher level by the institution.
- The Table of Specifications provided will be used for the three papers of the Second professional examination. The same table of specifications should be used for the respective three block exams for internal assessment.



SYLLABUS OF INFLAMMATION MODULE



NORMAL STRUCTURE

THEORY

CODE	EMBRYOLOGY & POST-NATAL DEVELOPMENT	TOTAL HOURS = 03	
	SPECIFIC LEARNING OUTCOMES	DISCIPLINE	TOPIC
IN-A-001	Identify role of inflammation in implantation Development of cells involved in acute & chronic inflammation Development of integumentary system	Embryology	Role of inflammation in Implantation & Development of Integumentary System
CODE	MICROSHOPIC STRUCTURE	TOTAL HOURS = 02	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
IN-A-002	Discuss the microscopic structure of components involved in inflammation (cells, capillaries) Discuss the histology of integumentary system	Histology	Integumentary system & Inflammatory Response at Cellular Level

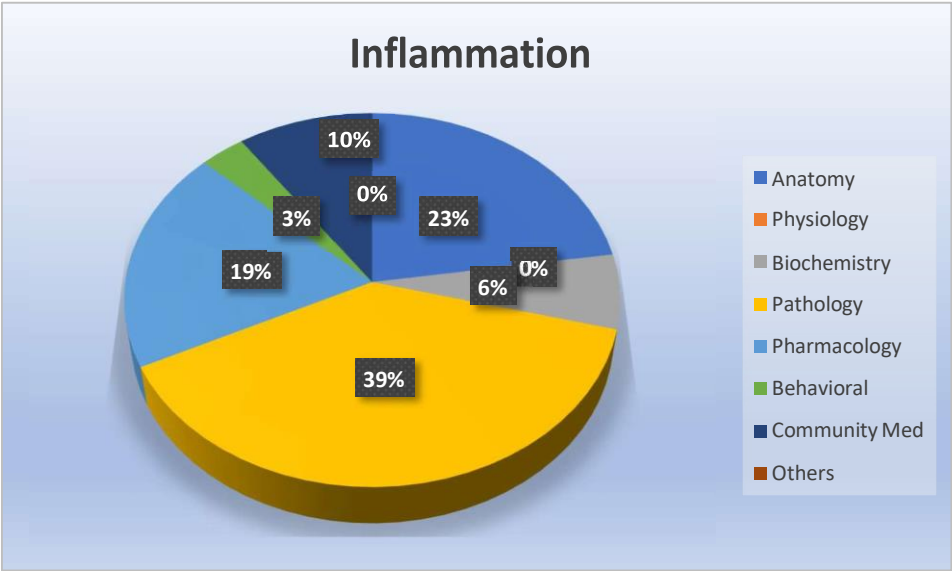
PRACTICAL

CODE	HISTOLOGY	TOTAL HOURS = 02	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
IN-A-003	Draw and identify microscopic structure of integumentary system	Histology	Integumentary System
CODE	MEDICAL BIOCHEMISTRY	TOTAL HOURS = 01	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
IN-B-001	Explain the biochemical and therapeutic roles of eicosanoids (prostaglandins, leukotrienes, thromboxane and prostacyclin)	Medical Biochemistry	Eicosanoids

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS			
CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS=06+12	
		DISCIPLINE	TOPIC
IN-Ph-001	Enumerate prostaglandin analogues Discuss the clinical use and adverse effect of prostaglandin analogues	Pharmacology & Therapeutics	Prostaglandin analogues
IN-Ph-002	Enlist anti-inflammatory drugs Differentiate between steroidal and non-steroidal anti-inflammatory drugs		Anti-Inflammatory drugs
IN-Ph-003	Discuss mechanism of action, clinical usage, and adverse effects of steroidal anti-inflammatory drugs		Steroidal anti-Inflammatory drugs
IN-Ph-004	Discuss mechanism of action, pharmacological effects, clinical usage, and adverse effects of non-steroidal anti-inflammatory drugs		Non-steroidal anti-Inflammatory drugs (NSAIDs)
IN- Ph-005	Differentiate between selective and non-selective cyclooxygenase (COX) inhibitors Differentiate between Aspirin and paracetamol Classify antihistamines Discuss the role of histamines and antihistamines in inflammation and allergies, adverse effects and drug interactions		COX inhibitors
IN-Pa-001	Define acute inflammation Enlist stimuli for Acute Inflammation Recognize microbes, necrotic cells, and foreign substances causing acute inflammation Identify different components of inflammation Define necrosis and explain its type with example	Pathology	Acute inflammation
IN-Pa-002	Discuss the role of vascular and cellular events in acute inflammation Differentiate between transudate and exudate Classify chemical mediators Describe the different pathways of synthesis of chemical		Process of acute inflammation

	mediators and their role in clinical practice Discuss the role of different chemical mediators in acute inflammation Describe the different morphological patterns and outcomes of acute inflammation		
IN-Pa-003	Define chronic inflammation Discuss the role of chronic inflammatory cells and mediators in chronic inflammation Discuss the causes, pathophysiology and morphology of granulomatous inflammation Classify mycobacteria Explain the pathogenesis, clinical manifestations and lab diagnosis of typical mycobacteria Explain the pathogenesis, clinical manifestations and lab diagnosis of atypical mycobacteria		Chronic Inflammation
IN-Pa-004	Discuss the concept of Cell Proliferation, the Cell Cycle and Stem Cells in tissue repair Discuss the role of Growth Factors, receptors, signal transduction and extracellular matrix Involved in Regeneration and Repair Explain the types of healing along with the steps in scar formation Identify the factors that influence the tissue repair Discuss the complication of wound healing -keloid, Hypertrophy, Scarring		Cell Repair
DISEASE PREVENTION AND IMPACT			
CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS=03+01	
		DISCIPLINE	TOPIC
IN-CM-001	Discuss the mode of transmission of communicable diseases Explain the general concept of prevention of communicable diseases Discuss the primary, secondary and tertiary prevention of	Community Medicine and Public Health	Communicable Diseases

	acute and chronic diseases Discuss the role of immunoprophylaxis and chemoprophylaxis in prevention of communicable diseases		
IN-BhS-001	Understand the correlation between psychological stress and inflammation	Behavioral Sciences	Role of Psychological stress in Inflammation
AGING			
CODE	THEORY	TOTAL HOURS = 01	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
IN-Ag-001	Explain inflammatory changes and role of leukotriene and cytokines in old age	Biochemistry	Inflammatory changes & signaling molecules in Aging



Module Weeks	Recommended Minimum Hours
01	31



QUEENS MEDICAL COLLEGE, KASUR
Timetable 2nd Year MBBS (Session-2024-25) –Inflammation Module-11 Week 1

	8:00 - 9:15	9:15- 10:00	10:00-10:45		11:15-12:00	12:00- 12:45	12:45-1:30	1:30-03:00
Monday	BIOCHEMISTRY TEST	ANATOMY LGIS NS-A-xxx Topic Teacher	Pathology LGIS in-Pa-xxx Inflammation Vascular and Cellular Events	B	PHYSIOLOGY LGIS NS-P-xxx Topic Teacher	BIOCHEMISTRY LGIS NS-B-014 Topic: Discuss the concept of Xenobiotics Teacher: Prof. Dr. Shahzad	PHYSIOLOGY LGIS NS-P-xxx Topic Teacher	Practical Batch A: Anatomy Batch B: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch C:Pharmacology
Tuesday	ANATOMY DISSECTION NS-A-xxx Topic Teacher	BEHAVIOURAL SCIENCES NS- Bhs-002 Memory techniques in clinical interventions	PERL LGIS In-PERL-2-018 Rapport building Basics of Negotiation Dr.Uzma Sohail	R	PHYSIOLOGY LGIS NS-P-xxx Topic Teacher	ANATOMY DISSECTION NS-A-xxx Topic Teacher	Pathology in-Pa-xxx Inflammation Vascular and Cellular Events	Practical Batch B: Anatomy Batch C: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch A: Pharmacology
Wednesday	PATHOLOGY - LGIS In-Pa-xxx Outcome of acute inflammation & its morphological types Teacher	BEHAVIOURAL SCIENCES Inn-Bhs-001 Stress and Inflammation Correlation	PHARMA - LGIS In-Ph-xxx Topic Teacher	B	PATHOLOGY LGIS In-Pa-xxx Chronic Inflammation Types and Cells	COMM- MED LGIS In-CM-xxx Topic Teacher	Embryology-LGIS In- A-xxx Topic Teacher	Practical Batch C: Anatomy Batch A: : Pathology Acute appendicitis Chronic cholecystitis Granuloma Keloid Batch B:Pharmacology
Thursday	PATHOLOGY - LGIS In-Pa-xxx Normal growth & cell cycle Teacher	Embryology-LGIS In- A-xxx Topic Teacher	COMM- MED LGIS In-CM-xxx Topic Teacher	R	PHARMA - LGIS In-Ph-xxx Topic Teacher	COMM- MED LGIS In-CM-xxx Topic Teacher		PATHOLOGY-LGIS In-Pa-xxx Repair & Healing Defects of healing Topic Teacher

MBBS 2nd Professional
Block-6

Theme	Subject	Written Exam			Oral/Practical/Clinical Exam			
		MCQ (1 mark)	SEQ (5 mark each)	Marks	OSPE (8 marks each observed)	OSCE (8 marks each observed)	OSVE (16 marks each observed)	Marks
Normal Structure	Anatomy applied/clinical	24	03	39	03	-	01	40
Normal Function	Physiology applied/clinical	26	03	41	03	-	01	40
	Biochemistry applied/clinical	09	01	14	01	-	01	24
Disease Burden & Prevention	Community Medicine & Public Health	04	-	04	-	-	-	-
	Behavioral Sciences	03	-	03	-	-	-	-
Pathophysiology & pharmacotherapeutics	Pathology	12	-	12	-	-	-	-
	Pharmacology	07	-	07	-	-	-	-
CFRC	CF-2-3	-	-	-	-	01	-	08
PERLS	PERLS-2-3	-	-	-	-	01	-	08
Total		85	7x5=35	120	07 stations x 08 = 56	02 stations x 08 = 16	03 stations x 16=48	120

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LOGBOOK

**CLINICAL-FOUNDATION
ROTATION CLERKSHIP**

C-FRC

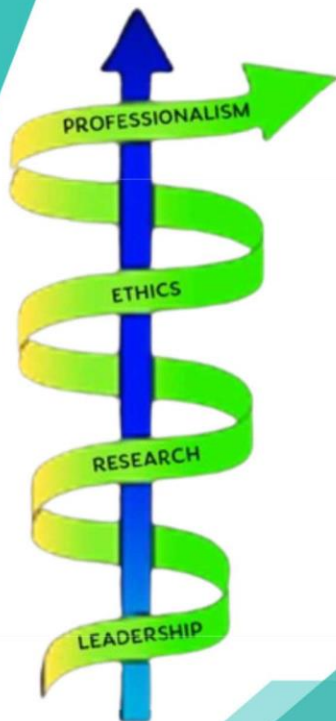
NEUROSCIENCES-1 MODULE

Objectives	Skill	Miller's Pyramid Level Reflected
Assess Glasgow Coma Scale	GCS	Shows
Interpretation of Normal CT brain	CT scan interpretation	Knows how



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PERLS

**PROFESSIONALISM, ETHICS
RESEARCH, LEADERSHIP SKILLS**

BLOCK-6

Code	Domain	Attribute	Specific Learning Outcome	Topic	Portfolio Entry
PERLs- 2-16	Professionalism	Self-Aware	Build a rapport with a stable patient	Rapport building Basics of Negotiation	Written report on patient encounter
PERLs- 2-17		Communicator	Demonstrate non-verbal, verbal communication skills with stable patients	Communication skills with the patients Appropriate verbal communication and appropriate non-verbal communication grounded in culture and context	Communication skills checklist filled by the observer
PERLs- 2-18	Leadership	Resilient & Adaptable	Demonstrate patience and tolerance with patients' relatives	Explaining decisions to relatives in terms that they understand Cultural and language sensitivity Art and science of listening	Reflection on encounter with patient attendants in a ward setting
PERLs- 2-19		Self-Directed Learner	Seek active feedback from peers and teachers	Difference between reflection and Feedback Techniques of receiving feedback	Feedback request generated by the student in specific areas and the reflection on the response received
PERLs- 2-20			Seek membership in one of the student clubs or societies within or outside the institution.	Medical Societies and clubs that provide membership to the student Bylaws, formation and registration of societies and clubs	Membership proof of any one club or society
PERLs- 2-	Research	Writer &	Write a literature	Structuring of a	Literature review



21		Presenter	review	literature review Academic writing essentials Plagiarism and its types	of at least 2000 words
PERLs- 2- 22			Make a poster of the literature review	Anatomy of an academic poster Presenting a poster in academia	Poster



Develop & Design by:

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