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Pakistan Society of Basic & Applied Neuroscience

C'25 ENQ

THE ESSENTIALS OF NEURO SCIENCE COURSE

September 12th, 2025
8am to 5:30pm
Auditorium, Shalamar Medical & Dental College

September 13th, 2025
8am to 5pm
LH3, University College of Medicine & Dentistry, UoL

Dr. Syed Ather Enam

Sitara-i-imtiaz

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PAKISTAN ACADEMY OF NEUROLOGICAL SURGERY PANS
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Shalamar Institute of Health Sciences
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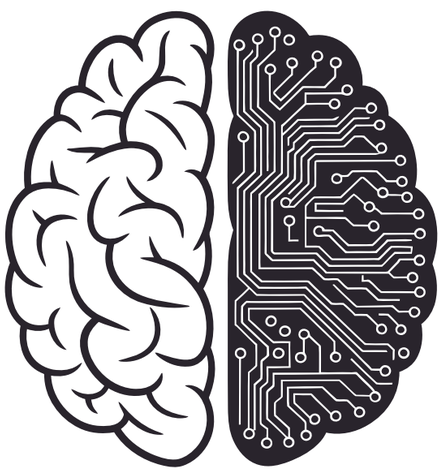
THE ESSENTIALS OF NEURO SCIENCE COURSE



COURSE OUTLINE

DAY 1

12TH SEPTEMBER 2025

8:00-8:20	**Registration Desk Sign-in**	
8:20-8:30	**Introduction**	
8:30-9:30	**Lecture I-A: Overall Design of the Nervous System** General layout of the human nervous system, surface anatomy of brain and function, fiber tracts, spinal cord, spinal reflex, and brainstem.	**Module 1: Neuron to Nervous System**
9:30-9:35	**Breather**	
9:35-10:35	**Lecture I-B: Nervous System at the Cellular Level** Neuron, glia, myelin, cell membrane, neural and glial cytoskeleton, axoplasmic transport, histology of cerebral cortex	
10:35-10:45	**Quiz 1**	
10:45-11:00	**Q/A and Discussion**	
11:10-11:30	**BOOK LAUNCH**	
11:30-11:40	**Tea Break**	
11:40-12:40	**Lecture II-A: Electrical Properties of Neurons** Resting membrane potential, ion channels and transporters, Nernst equation and Goldman-Hodgkin-Katz voltage equation, action potential and myelin	**Module 2: The Chatting Neurons**
12:40-1:45	**Lunch and Namaz Break**	

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DAY 1

12TH SEPTEMBER 2025

1:45-2:45	**Lecture II-B: Synaptic Transmission** Cellular communication, electrical and chemical synapses, neurotransmitters, neuropeptides, synaptic vesicles and release,metabotropic and ionotropic receptors,second messenger system	Module 2: The Chatting Neurons
2:45-2:55	**Quiz 2**	
2:55-3:10	**Q/A and Discussion**	
3:10-3:15	**Breather**	
3:15-4:15	**Lecture III-A: Basal Ganglia and Thalamus** Basal ganglia and components, motor control by basal ganglia, anatomy and function of thalamus, basal ganglia and thalamus in disease	
4:15-4:20	**Breather**	
4:20-5:20	**Lecture III-B: Cerebellum and Reticular Activating System** Anatomy of cerebellum, deep cerebellar nuclei, cerebellar circuit, reticular activating system anatomy and function, circadian rhythm, vestibulocochlear system	Module 3: Deep In The Brain
5:20-5:30	**Quiz 3**	
5:30-5:45	**Q/A and Discussion**	
END OF DAY 1		

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DAY 2

13TH SEPTEMBER 2025

8:00-8:30	**Recap of Day 1**	
8:30-9:30	**Lecture IV-A: Neurobiology of Memory** Types of memory, dementia, habituation and sensitization, long term potentiation and depression, molecular correlates of memory, dendritic spines, synaptic plasticity	**Module 4: Understanding Memory, Behaviour, and Emotions**
9:30-9:35	**Breather**	
9:35-10:35	**Lecture IV-B: Neurobiology of Behavior and Emotions** Limbic System, types of emotion, amygdala, neurophysiology of pain, neurotransmitters of emotion, hypothalamus olfactory and gustatory, pain	
10:35-10:45	**Quiz 4**	
10:45-11:00	**Q/A and Discussion**	
11:00-11:20	**Tea Break**	
1:20-12:20	**Lecture V-A: CNS Development I** Neural tube formation, congenital abnormalities, homeobox genes, embryonic induction, neuronal migration, neurotrophic factors	**Module 5: The Amazing Story of Brain Development**
12:20-12:25	**Breather**	

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DAY 2

13TH SEPTEMBER 2025

12:25-1:25	**Lecture V-B: Evolution of Human Brain** Single cell to multicellular organism, Simple nervous system, growth of brain, comparison of brain of mammals, primates and genus Homo.	Module 5: The Amazing Story of Brain Development
1:25-1:35	**Quiz 5**	
1:35-1:50	**Q/A and Discussion**	
1:50-2:00	**Break**	
2:00-3:00	**Lecture VI-A: Cognition and Communication** Neural basis of language, aphasias, visual system, from image on the retina to simple perception and cognition, association cortex and cognition.	Module 6: What is Special about the Human Brain
3:00-3:05	**Breather**	
3:05-4:05	**Lecture VI-B: Awareness and Consciousness** Neuroanatomy of attention and planning, neural basis of intelligence, thoughts about awareness and consciousness.	
4:05-4:15	**Quiz 6**	
4:15-4:30	**Q/A and Discussion**	
4:30-5:00	**CLOSING CEREMONY AND SHIELD DISTRIBUTION**	

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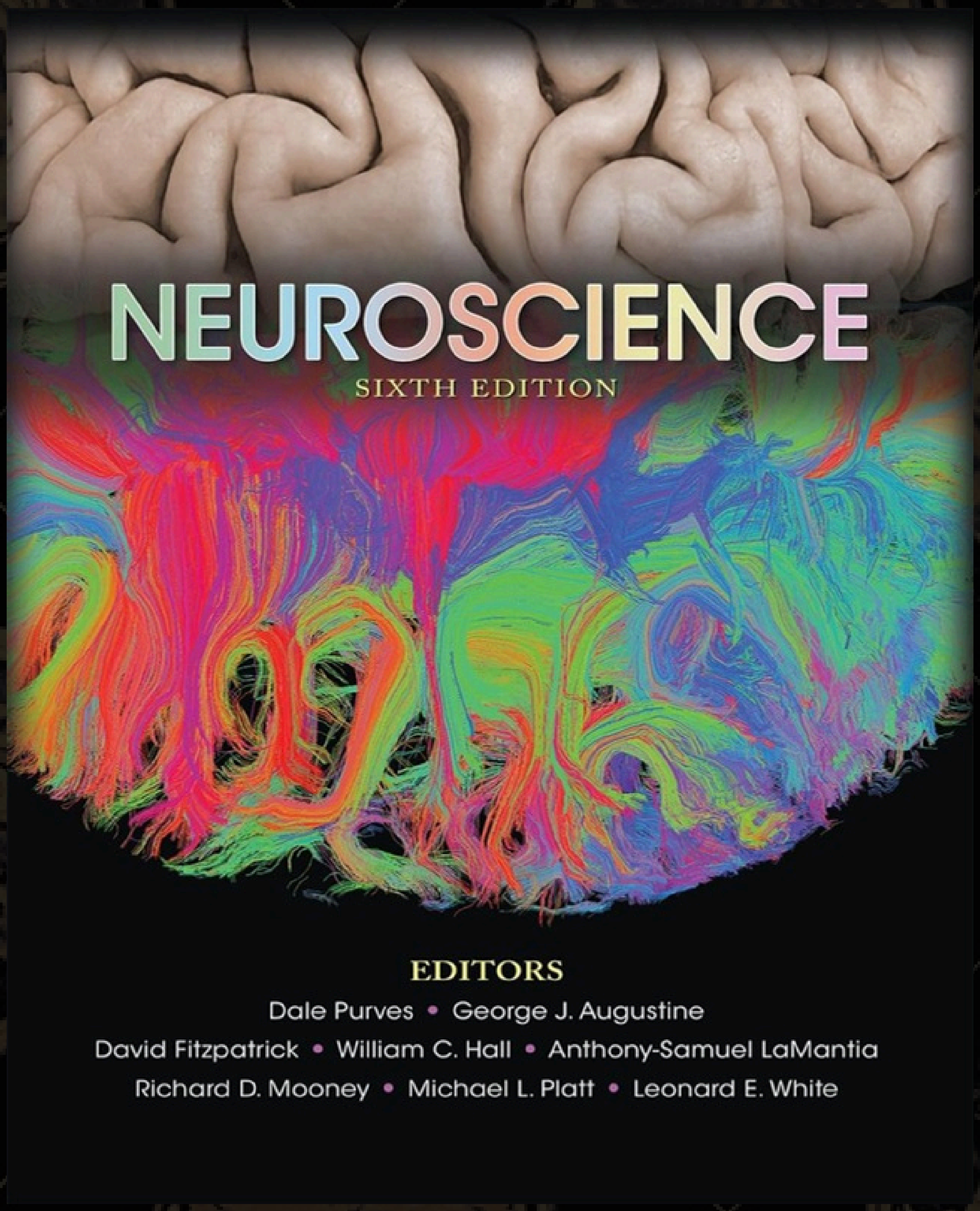
BOOK REFERENCE FOR THE COURSE



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