



Course Syllabus - MBBCh

1. Academic Unit Name: Neuroscience Module		Course Code: NSC31
2. Credit/contact hours:	Total Contact hours: 216 Theoretical: 150 Practical: 35 Others: 35	
3. Number of weeks	8 weeks	
4. Level/year at which this course is offered:	MBBCh Y3- Semester 1	
5. Pre-requisites for this course (if any): MBBCh Y1, Y2 (Autonomic Nervous System, Head & Neck)		
6. Co-requisites for this course (if any):		

Course Description

- This module will provide a detailed understanding of the structure and function of the nervous system. Basic neurosciences will be distributed fairly over eight weeks under specific integrated themes.

1 -Overall Aims of Course:

- To provide a broad understanding of the structure and function of the nervous system with a depth of knowledge in cellular/molecular or behavioural/cognitive perspectives.
- To enable students to use neuroscience research techniques to conduct research.
- To enable the development and application of appropriate professional attitudes, communication and problem-solving skills.
- To provide students with an appropriate background covering the common and important Neurological disorders and emergencies.

Course Learning Outcomes

CLOs	Aligned-PLOs

CLOs		Aligned-PLOs
K1	Describe the macrostructure and microstructure and functions of the brain, spinal cord, meninges and the supporting tissue in health and disease.	A1
K2	Explain the underlying causes of major classes of nervous system disease and explain major clinical findings based on pathophysiologic principles	A2
K3	Relate the changes in emotions, behavior and personality by recalling the structure and functions of limbic system	A3
K4	Describe the mechanisms of action and therapeutic targets of the major therapeutic classes used in the treatment of nervous system diseases, and the various types of drugs of abuse.	A3
K5	Describe the pathways of special senses (vision, hearing, smell and taste) and discuss the pathologic features of major diseases of the eye.	A1
K6	Corelate the potential sites of neurological lesions based on neurological dysfunction signs and symptoms.	A2
K7	Descibe a logical therapeutic approach to nervous system disease based on pathoanatomy, pathophysiology, and pharmacology principles.	A2
K8	List the major psychiatric disorders' diagnostic classification, clinical features, differential diagnoses, typical course and prognosis, as well as their common comorbid conditions and mental status findings.	A1
S1	Analyze results of laboratory and radiological CT scans and MRI's to diagnose and manage patients with neurological diseases and analyze clinical signs and symptoms of nervous system diseases in order to organize/build a differential diagnosis.	B2
A1	Demonstrate awareness of the impact of common nervous system diseases as well as psychological disorders on the quality of life of the individual and community and the preventive strategies.	C1

Course Delivery Plan

	Session Title	Time	Teaching Method	Name of Teaching Faculty	Department	No.	Week
1	Introduction to Neuroanatomy	1	L	Prof. El Mardi	Anatomy	2 wk 5	week 1
2	Topography of the Brain	1	L	Prof. El Mardi			

3	Cerebral hemispheres	1	L	Prof. El Mardi		6	
4	Cortical area	1	L	Prof. El Mardi			
5	Brain stem, spinal cord Topography	1	L	Prof. El Mardi			
	Early Development of CNS	1	L	Prof. El Mardi			
6	Cerebral hemisphere	2	P	Prof. El Mardi			
8	Cerebrum & Cerebellum	1	PB L	Prof Nadia	Histology	5	
9	The spinal Cord -Cervical	1	L	Prof Nadia			
10	The spinal Cord -Thorax & Lumbar	1	L	Prof Nadia			
11	Practical	1	P	Prof Nadia			
12	Organization and divisions of the nervous system	1	L	Prof. Abeer	Physiology	10	
13	Functions of cerebral cortex	1	SD L	Prof. Abeer			
14	Types & Properties of Sensory receptors	1	L	Prof. Abeer			
15	Sensory coding	1	L	Prof. Abeer			
16	Pain sensation I	1	SBI L	Prof. Abeer			
17	Pain sensation II	1	PB L	Prof. Abeer			
18	Pain suppression (analgesia) system	1	L	Prof. Abeer			
19	Examination of the cranial nerves	2	P	Prof. Abeer			
	Dermatomes & Ascending tracts	1	L	Prof. Abeer			
20	Introduction to CNS Pharmacology	1	L	Prof. Tasneem	Pharmacology		
21	Opioid Analgesics I	1	L	Prof. Tasneem			
22	Opioid Analgesics II	1	SBI L	Prof. Tasneem			
23	Opioid Analgesics III	1	PB L	Prof. Tasneem			
24	Partial Opioid Agonists & antagonists	1	SP	Prof. Tasneem			
25	Revisit of NSAIDs	1	DS L	Prof. Tasneem			
26	Biopsychosocial model	1	SBI L	Prof. Samia	Beh. Sciences	3	
27	Family cycle I	1	CB L	Prof. Samia			
	Family cycle II	1		Prof. Samia			
28	PHC	2				2	

29	<u>PBL-Brain Storming</u>	4	PB L	Sunday	Wedn esday	1	
31	Brain vesicles	1	L	Prof. El Mardi	Anato my	4	wee k 2
32	Brain ventricles I	1	L	Prof. El Mardi			
33	Brain ventricles II and CSF circulation	1	L	Prof. El Mardi			
34	Brain Ventricles	1	P	Prof. El Mardi			
35	The brain stem - (Medulla) closed	1	L	Prof. Nadiah	Histol ogy	6	
36	The brain stem - (Medulla) Open	1	L	Prof. Nadiah			
37	Pons-I	1	L	Prof. Nadiah			
38	Pons-II	1	SG D	Prof. Nadiah			
39	Practical	2	P	Prof. Nadiah			
40	Thermal sensations, Touch & Proprioceptive sensations	1	PB L	Prof. Abeer	Physio logy	8	
42	Examination of Sensory System	2	P	Prof. Abeer			
43	Neural synapses and neurotransmitters	1	L	Prof. Abeer			
44	Properties of synaptic transmission	1	SD L	Prof. Abeer			
45	Classification of Reflexes	1	L	Prof. Abeer			
46	Properties of Reflex Action I	1	L	Prof. Abeer			
47	Properties of Reflex Action II	1	L	Prof. Abeer			
48	Hydrocephalus	1	L	Dr. Mariam	Pathol ogy	1	
49	Preanesthetic medication	1	L	Prof. Tasneem	Phar macol ogy	6	
50	Gaseous anesthetics	1	L	Prof. Tasneem			
51	IV Anesthetics I	1	L	Prof. Tasneem			
52	IV Anesthetics II	1	SBI L	Prof. Tasneem			
53	Practical	1	P	Prof. Tasneem			
54	Alcohol	2	L	Prof. Tasneem			
55	Family cycle III	1	L	Prof. Samia	Beh. Scienc es	2	
56	Family cycle IV	1	L	Prof. Samia			
57	PHC	2				2	
58	<u>PBL-Debreifing</u>	2	PB L	Wednesday		2	

59	Brain stem- cranial nerves	1	L	Prof. El Mardi	Anatomy	4
60	Cranial Nerves I- VI	1	L	Prof. El Mardi		
61	Cranial nerves VII-XII	1	L	Prof. El Mardi		
62	Cranial nerve nuclei	1	L	Prof. El Mardi		
63	Stretch reflex & Muscle Receptors	1	L	Prof. Abeer	Physiology	7
64	Types of Stretch reflex	1	L	Prof. Abeer		
65	Functions of stretch reflex	1	L	Prof. Abeer		
66	Pyramidal & Extrapyramidal tracts	1	L	Prof. Abeer		
67	Extrapyramidal tracts	1	PB L	Prof. Abeer		
68	Examination of Reflexes	2	P: ne ed s 1/ 2 ho ur	Prof. Abeer		
	The meninges and brain barriers	1	L	Prof. Nadiah	Histology	4
69	Mid brain I	1	L	Prof. Nadiah		
70	Mid brain II	1	L	Prof. Nadiah		
71	Practical	1	P	Prof. Nadiah		
72	Pathology of CNS Infections I	1	L	Dr. Mariam	Pathology	2
73	Pathology of CNS Infections II	1	SD L	Dr. Mariam		
74	Acute Bacterial Meningitis 1	1	L	Prof. Magda	Microbiology	4
75	Acute Bacterial Meningitis 2	1	CB L	Prof. Magda		
76	Aseptic Meningitis	1	SBI L	Prof. Magda		
77	Encephalitis	1	CB L	Prof. Magda		
78	Protozoa affecting CNS and special sense (Eye): Free living Amoeba, Toxoplasmosis and Microsporidiosis	1	L	Dr. Dina	Parasitology	1
79	Antiepileptic Agents I	1	SBI L	Prof. Tasneem	Pharmacology	4
80	Antiepileptic Agents II	1	SD L	Prof. Tasneem		
81	Antiepileptic Agents III	1	SP	Prof. Tasneem		

WEEK 3
[17 Oct]:
Meningoencephalitis-PBL

82	Practical	1	P	Prof. Tasneem			
83	Epidemiology of Encephalitis	1	PBL	Dr. Sahar	CM	1	
	Personality disorders	1		Prof. Samia	Beh. Sciences	2	
84	Physician–patient relationship	1		Prof. Samia	Beh. Sciences		
85	PHC	2	P	Prof. Samia	spacing	2	
86	<u>PBL-Discussion</u>	3	PBL	Sun/Thursday		3	
87	Cranial nerve nuclei	1	L	Prof. El Mardi	Anatomy	7	
88	Fibers of the cerebrum and internal capsule	1	L	Prof. El Mardi			
89	Blood supply of the brain I	1	L	Prof. El Mardi			
90	Blood supply of the brain II	1	L	Prof. El Mardi			
91	Basal nuclei-1	1	L	Prof. El Mardi			
92	Basal nuclei-2	1	L	Prof. El Mardi			
93	Coronal section	1	P	Prof. El Mardi			
94	Neurological lesions-1	1	CB L	Prof. Abeer	Physiology	7	
95	Neurological lesions-2	1	CB L	Prof. Abeer			
96	Neurological lesions-3	1	PBL	Prof. Abeer			
97	Basal nuclei connections & functions-1	1	L	Prof. Abeer			
98	Basal nuclei connections & functions-2	1	SG D	Prof. Abeer			
99	Examination of motor System	2	P	Prof. Abeer			
100	Cerebrovascular disorders I	1	L	Dr. Mariam	Pathology	3	
101	Cerebrovascular disorders II	1	PBL	Dr. Mariam			
102	Practical	1	P	Prof. Ghazalah			
103	Local Anesthesia I	1	SBI L	Dr. Eslam	Pharmacology	2	
104	Local Anesthesia II	1	L	Dr. Eslam			
105	Encephalitis & Fungal Infections	1	SBI L	Prof. Magda	Microbiology	2	
106	Brain Abscess & chronic CNS Infections	1	CB L	Prof. Magda			

WEEK 4
[24 Oct]:
Stroke-ICM

107	Protozoa affecting CNS: African Trypanosomiasis and Cerebral Malaria	1	L	Dr. Dina	Parasitology	3	WEEK 5 [31 Oct]: Cerebellar ataxia- PBL
108	Trematodes affecting CNS through Embolic lesions(Cerebral Schistosomiasis, Heterophyes heterophyes)	1	SBL	Dr. Dina			
109	Cestodes affecting CNS and B12 deficiency: Cysticercosis , Coenurosis, Hydatid +VLM and Diphyllbothrium latum	1	SGD	Dr. Dina			
110	Epidemiology & Prevention of Toxoplasmosis	1	CB L	Dr. Sahar	CM	2	
111	Epidemiology & Prevention of Tetanus	1	SBL	Dr. Sahar			
112	DSM V	1	L	Prof. Samia	Beh. Sciences	2	
113	Mood disorder & Suicide I	1	CB L	Prof. Samia			
114	<u>ICM- Clinical aspects of Stroke</u>	3	PBL	Sun/Thursday		2	
115	Internal capsule	1	ICM	Prof. El Mardi	Anatomy	8	
116	Thalamus	1	L	Prof. El Mardi			
117	Connections of thalamus	1	L	Prof. El Mardi			
118	Hypothalamus	1	L	Prof. El Mardi			
119	Cerebellum	1	L	Prof. El Mardi			
120	Ascending pathways	1	PBL	Prof. El Mardi			
121	<u>Cerebellum, Thalamus & Hypothalamus</u>	2	P	Prof. El Mardi	Physiology	9	
122	The thalamus	1	SDL	Prof. Abeer			
123	The hypothalamus	1	L	Prof. Abeer			
124	cerebellum 1	1	L	Prof. Abeer			
125	cerebellum 2	1	L	Prof. Abeer			
126	cerebellum 3	1	CB L	Prof. Abeer			
127	cerebellum 4	1	PBL	Prof. Abeer			
128	Control of voluntary movements & Postural reflexes	1	ICM	Prof. Abeer			
129	<u>Assessment of coordination and gait</u>	2	P	Prof. Abeer	Pathology	2	
	Tumors of the CNS I	1	L	Prof. Ghazalah			
	Tumors of the CNS II	1	SBL	Prof. Ghazalah			

130	Sedative Hypnotics I	1	SBI L	Dr. Eslam	Pharmacology	4		
131	Sedative Hypnotics II	1	L	Dr. Eslam				
132	Sedative Hypnotics III	1	SG D	Dr. Eslam				
133	<u>Practical</u>	1	P	Dr. Eslam				
134	Slow Viral infections & Prion disease	1	SD L	Prof. Magda	Microbiology	2		
135	<u>Practical</u>	1	P	Prof. Magda				
136	Nematodes affecting CNS & special sense(Eye): Loa loa, Onchocerciasis, Cerebral Gnathostoma and Angiostrongylus	1	SD L	Dr. Dina	Parasitology	1		
137	Epidemiology and Prevention of Rabies	1	L	Dr. Sahar	CM	1		
138	Mental Health I	1	SBI L	Prof. Samia	Beh. Sciences	2		
139	Mental Health II	1	SD L	Prof. Samia				
140	Clinical skills	2				2		
141	<u>PBL-Discussion</u>	3	PB L	Sun/Thursday		3		
142	Descending Pathways	1	L	Prof. El Mardi	Anatomy	7		WEEK 6 <u>[7 Nov]</u> :Neurodegenerative diseases-PBL
143	Cerebral motor control-I	1	L	Prof. El Mardi				
144	Cerebral motor control-II	1	L	Prof. El Mardi				
145	hippocampus	1	L	Prof. El Mardi				
146	<u>CT-scan</u>	2	P	Prof. El Mardi				
147	Revision of CNS	1	IC M	Prof. El Mardi				
148	Eye ball, outer and middle layers	1	L	Prof. Nadiah	Histology	3		
149	Middle layer	1	PB L	Prof. Nadiah				
150	Retina	1	L	Prof. Nadiah				
151	The limbic system	1	L	Prof. Abeer	Physiology	8		
152	Motivation and reward	1	SD L	Prof. Abeer				
153	Language & Speech	1	L	Prof. Abeer				
154	Learning and memory	1	L	Prof. Abeer				
155	Sleep	1	L	Prof. Abeer				
156	Reticular Formation	1	PB L	Prof. Abeer				

157	Function of the eye	1	L	Prof. Abeer			
158	errors of refraction	1	SBI L	Prof. Abeer			
159	Degenerative disorders	1	SBI L	Prof. Ghazalah	Pathology	3	
160	Demyelinating Diseases and prion disease	1	SBI L	Prof. Ghazalah			
161	Practical	1	P	Prof. Ghazalah			
162	Antiparkinsonian drugs I	1	CB L	Dr. Eslam	Pharmacology	3	
163	Antiparkinsonian drugs II	1	L	Dr. Eslam			
164	Antiparkinsonian drugs III	1	L	Dr. Eslam			
165	Learning and behavioral modification	1	CB L	Prof. Samia	Beh. Sciences	2	
166	Sleep and sleep disorders	1	L	Prof. Samia			
167	Clinical skills	1				1	
168	<u>PBL-Discussion</u>	3	PB L	Sun/Thursday		3	
169	Visual pathway	1	L	Prof. El Mardi	Anatomy	3	
170	Vestibular pathway	1	L	Prof. El Mardi			
171	Auditory Pathway	1	PB L	Prof. El Mardi			
172	Eyelid & Lacrimal glands	1	SD L	Prof. Nadiah	Histology	5	
173	External ear & Middle ear	1	SD L	Prof. Nadiah			
174	Inner ear	1	L	Prof. Nadiah			
175	Organ of corti	1	L	Prof. Nadiah			
176	Practical	2	P	Prof. Nadiah			
177	theory of vision 1	1	L	Prof. Abeer	Physiology	5	
178	theory of vision 2	1	SBI L	Prof. Abeer			
179	Color vision	1	SD L	Prof. Abeer			
180	Vestibular apparatus	1	L	Prof. Abeer			
181	Hearing 1	1	L	Prof. Abeer			
182	Ocular pathology	1	SG D	Prof. Ghazalah	Pathology	1	
183	Antidepressants I	1	SBI L	Dr. Eslam	Pharmacology	6	
184	Antidepressants II	1	L	Dr. Eslam			

WEEK 7
[14 Nov]
: Anxiety & Depression-ICM

185	Antipsychotics and antimaniac I	1	CB L	Dr. Eslam				
186	Antipsychotics II	1	L	Dr. Eslam				
187	Antipsychotics III	1	PB L	Dr. Eslam				
188	Practical	1	P	Dr. Eslam				
189	How can Parasitic stages reach the CNS: Discuss in tables	1	SD L	Dr. Dina	Parasi tology	2		
190	IFOM	1	PB L	Dr. Dina				
191	Occupational Physical Hazards	1	P	Dr. Sahar	CM	1		
192	Psychiatry case history and DSM systems	1	CB L	Prof. Samia	Beh. Scienc es	1		
195	Clinical skills	1				1		
196	<u>ICM-Clinical Aspects of psychiatric disorders</u>	2	IC M	Sun/Thursda y		2		
197	Olfactory pathway	1	L	Prof. El Mardi	Anato my	5		
198	Congenital anomalies of CNS	1	L	Prof. El Mardi				
199	Development of eye and ear	1	L	Prof. El Mardi				
200	neuroanatomy revision-1	1	L	Prof. El Mardi				
201	neuroanatomy revision-2	1	PB L	Prof. El Mardi				
202	Practical revision	1	P	Prof. Nadiah	Histol ogy	1		
203	Hearing 2	1	L	Prof. Abeer	Physio logy	6		
204	Pupillary reflexes & Visual acuity	2	P	Prof. Abeer				
205	Hearing tests	2	P	Prof. Abeer				
206	Smell and taste	1	SD L	Prof. Abeer				
209	Practical Revision	1	P	Dr. Mariam	Pathol ogy	1		
210	Drugs of abuse I	1	SP	Dr. Eslam	Phar macol ogy	4		
211	Drugs of abuse II	1	SP	Dr. Eslam				
212	Revisit of Treatment of Gluacoma	1	L	Dr. Eslam				
213	Revision	1	LM S for ma tiv e as	Prof. Tasneem				

WEE
K 8
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Nov]
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			essment			
214	Practical	1	P	Dr. Dina	Parasitology	1
	Substance use disorders	1	L	Prof. Samia	Beh. Sciences	2
216	Ethical and legal issues	1	L	Prof. Samia		
218	Mental Health	1	CBL	Dr. Sahar	CM	1

Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
k1	Describe the macrostructure and microstructure and functions of the brain, spinal cord, meninges and the supporting tissue in health and disease.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
k2	Explain the underlying causes of major classes of nervous system disease and explain major clinical findings based on pathophysiologic principles	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
k3	Relate the changes in emotions, behavior and personality by recalling the structure and functions of limbic system	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
k4	Outline the mechanisms of action and therapeutic targets of the major therapeutic classes used in the treatment of nervous system diseases, and discuss the various types of drugs of abuse.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
k5	Describe the pathways of special senses (vision, hearing, smell and taste) and discuss the pathologic	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM	Mid-comprehensive Final comprehensive OSPE/OCE Practical

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	features of major diseases of the eye.	Practical	
s1	Interpret the potential sites of neurological lesions based on neurological dysfunction signs and symptoms.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
s2	Develop a logical therapeutic approach to nervous system disease based on patho-anatomy, pathophysiology, and pharmacology principles.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
s3	Analyze results of laboratory and radiological CT scans and MRI's to diagnose and manage patients with the neurological diseases Analyze clinical signs and symptoms of nervous system diseases in order to organize/build a differential diagnosis.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
s4	Practice the major psychiatric disorders' diagnostic classification, clinical features, differential diagnoses, typical course and prognosis, as well as their common comorbid conditions and mental status findings.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
s5	Practice the major psychiatric disorders' diagnostic classification, clinical features, differential diagnoses, typical course and prognosis, as well as their common comorbid conditions and mental status findings.	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM Practical	Mid-comprehensive Final comprehensive OSPE/OCE Practical
A1	Demonstrate awareness of the impact of common nervous system diseases as well as psychological disorders on the	L SBIL/ CBL/ SDL/ SGD/ PBL/ TBL ICM	Mid-comprehensive Final comprehensive OSPE/OCE Practical

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	quality of life of the individual and community and plan preventive strategies.	Practical	

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score	Date
2	Continuous assessments (Attendance, Quiz, projects, Assignments, Presentations, Clinical Skills, mid term)	Throughout the module	30%	Midterm on 7 November 2022
3	Final comprehensive exam (MCQ's, Oral, OSPE)	End of semester	70%	6 Dec 2022

*Assessment task (i.e., written test, oral test, oral presentation, group project etc.)

Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<p>Pathology: Kumar, V., Abbas, A. K., & Aster, J. C. (2017). Robbins Basic Pathology (10th ed.). Elsevier - Health Sciences Division.</p> <p>Anatomy: Patestas, M. A., & Gartner, L. P. (2016, April 22). A Textbook of Neuroanatomy. Wiley-Blackwell.</p> <p>Anatomy: Gould, D. J. (2019, July 9). BRS Neuroanatomy.</p> <p>Anatomy: Cicchetti, F., Barker, R. A., & J. Robinson, E. S. (2017, October 2). Neuroanatomy and Neuroscience at a Glance. Wiley-Blackwell.</p> <p>Anatomy: Vanderah, T., & Gould, D. J. (2020, June 19). Nolte's the Human Brain. In An Introduction to Its Functional Anatomy.</p> <p>Anatomy: Splittgerber, R. (2018, November 14). Snell's Clinical Neuroanatomy.</p> <p>Histology: Anthony L. Mescher Junqueira's Basic histology text and atlas. 15th ed.; 2018. ISBN798-1-259-07232-1</p> <p>Histology: Leslie P. Gartner, James L. Hiatt; color Atlas and text, histology, 7th ed.; 2018. ISBN 978-1-4511-1343-3</p> <p>Physiology: Hall, J. E., & Hall, M. E. (2020, June 16). Guyton and Hall Textbook of Medical Physiology.</p> <p>Microbiology: Jawetz, Melnick Adelberg's Medical Microbiology 28th Edition</p> <p>Parasitology: Bogitsh, B. J., Carter, C. E., & Oeltmann, T. N. (2018, May 28). Human Parasitology. Academic Press.</p> <p>Community Medicine: Control of Communicable Diseases Manual. (2022, February 28). In D. L. Heymann (Ed.), An Official Report of the American Public Health Association. APHA Press.</p> <p>Pharmacology: Tripathi, K. D. (2018, October 31). Essentials of Medical Pharmacology.</p>
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	Pharmacology: Whalen, K. (2022, October 26). Lippincott Illustrated Reviews: Pharmacology.
References Materials	<p>Pathology: Strayer DS, Rubin E, Saffitz JE, Schiller AL (2019). Rubin's Pathology: Mechanisms of Human Disease. Lippincott-Wolters Kluwer.</p> <p>Anatomy: W. (1993, January 1). Medical Neuroanatomy. In A Problem Oriented Manual.</p> <p>Anatomy: Mtui, E., Gruener, G., & Dockery, P. (2020, September 3). Fitzgerald's Clinical Neuroanatomy and Neuroscience.</p> <p>Anatomy: Haines, D. E. (2014, April 21). Neuroanatomy in Clinical Context. In An Atlas of Structures, Sections, Systems, and Syndromes.</p> <p>Physiology: Barrett, K. E., & Ganong, W. F. (2010, January 1). Ganong's Review of Medical Physiology.</p> <p>Microbiology: Levinson, W. E., Chin-Hong, P., Joyce, E. A., Nussbaum, J., & Schwartz, B. (2022, February 25). Review of Medical Microbiology and Immunology, Seventeenth Edition.</p> <p>Parasitology: Ghosh, S. (2020, October 23). Paniker's Textbook of Medical Parasitology.</p> <p>Community Medicine: Blokdyk, G. (2019, September 19). Occupational Health and Safety a Complete Guide - 2020 Edition.</p> <p>Pharmacology: Katzung, B. G., & Trevor, A. J. (2020, December 5). Basic and Clinical Pharmacology 15e. McGraw-Hill Education / Medical.</p> <p>Pharmacology: DiPiro, J. T., Talbert, R. L., Yee, G., Wells, B., & Posey, L. M. (2014, March 16). Pharmacotherapy a Pathophysiologic Approach.</p>
Electronic Materials	<ul style="list-style-type: none"> • EBSCO e-Books Clinical Collection: • ClinicalKey Student Foundation from Elsevier • Amboss • Access-pharmacy • Up to date • Medline Complete
Other Learning Materials	<ul style="list-style-type: none"> • https://nba.uth.tmc.edu/neuroscience/m/index.htm • https://learninglink.oup.com/access/neuroscience-sixth-edition-student-resources#tag_animations

2. Facilities Required

Item	Resources
Accommodation	Classrooms, laboratories, demonstration rooms, simulation lab, Museums

Item	Resources
(Classrooms, laboratories, demonstration rooms/labs, etc.)	
Technology Resources (AV, data show, Smart Board, software, etc.)	LMS, AV, data show, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

Couse Coordinator: Dr. Eslam <dr.eslam@dmcg.edu>

Instructors:

Dr. Rasha: dr.rasha@dmcg.edu

Prof. Ghazala: <dr.ghazala@dmcg.edu>

Dr. Shifan: <dr.shifan@dmcg.edu>

Prof. Naglaa: <nagla@dmcg.edu>

Prof. Tasneem: <Prof.Tasneemsandozi@dmcg.edu>

Prof. Magda: <magda@dmcg.edu>

Dr. Dina Salah: <dmohamed@dmcg.edu>

Dr. Sahar <dr.sahar@dmcg.edu>