ISO 9001:2008 CERTIFIED

LIAQUAT UNIVERSITY
OF MEDICAL & HEALTH SCIENCES
JAMSHORO SINDH, PAKISTAN

CURRICULUM

SECOND PROFESSIONAL MBBS

BATCH 2019-20

ACADEMIC SESSION 2020-21

CONTENTS

MESSAGE

On behalf of the Vice Chancellor Prof. Dr. Bikha Ram Devrajani faculty members, I welcome you all to the Third Semester (Second Year MBBS) class. Liaquat University of Medical and Health Sciences, is nationally and internationally recognized that distinguishes itself as the first ever public sector Medical University achieved ISO 9001:2008 certification and thus became entrenching center for outstanding teaching qualities with moral and ethical values, fantastic learning outcomes, and productivity of the student's knowledge and experience.

We represent brilliant standards in teaching, research and creativity by regular class room activity, OSPE/OSCE pattern of evaluation, strict monitoring of student's attendance and counseling by Director Academics to produce professionals outfitted with highest standards in transfer and application of knowledge to address the health issues of this society.

All this is only possible with support of students, their parents and teachers, which are actually the stakeholders and play fundamental role to achieve upcoming objectives and goals.

Your accomplishments at Liaquat University of Medical and Health Sciences will be the extent of our achievements in delivering high quality education, knowledge and training.

I wish you best of luck and an unforgettable learning experience during your stay at this university.

DIRECTOR ACADEMICS
LUMHS

SECOND PROFESSIONAL MBBS
BATCH 2019-20
ACADEMIC CALENDAR

Classes will start from	29th March 2021
Ramazan & Eid-ul-Fitr Holidays	01st to 16th May 2021
Classes will re-start from	17th May 2021
Classes will end on	20th November 2021
Preparation leaves	21st Nov to 19th Dec 2021
Theory and OSPE Examination	20th Dec to 29th Jan 2022

WEEKLY TIME TABLE
FROM MONDAY 29TH MARCH 2021
VENUE: GROUP ABC: Bio Lecture Hall & DEF: Physiology Lecture Hall

<table>
<tr><th>TIME</th><th>MONDAY</th><th>TUESDAY</th><th>WEDNESDAY</th><th>THURSDAY</th><th>FRIDAY</th></tr>
<tr><td>08:00
10:00</td><td><u>PRACTICAL</u>
Histology B
Physiology C
Biochemistry A</td><td><u>PRACTICAL</u>
Histology E
Physiology F
Biochemistry D</td><td><u>PRACTICAL</u>
Histology A
Physiology B
Biochemistry C</td><td><u>PRACTICAL</u>
Histology D
Physiology E
Biochemistry F</td><td rowspan="3">ANATOMY
Dissection &
Demonstration
All Groups</td></tr>
<tr><td>08:00
09:00</td><td>IT-F</td><td>IT-C</td><td>IT-D</td><td>IT-A</td></tr>
<tr><td>09:00
10:00</td><td>Anatomy
Lecture DEF</td><td>Anatomy Lec ABC
PHY HALL</td><td>Biochemistry
Lecture DEF</td><td>Biochemistry
Lecture ABC</td></tr>
<tr><td rowspan="2">10.00
11.00</td><td rowspan="3">PBL ABC
OR SKILL LAB

<u>PRACTICAL</u>
Histology F
Physiology D
Biochemistry E</td><td rowspan="3">PBL DEF
OR SKILL LAB

<u>PRACTICAL</u>
Histology C
Physiology A
Biochemistry B</td><td>Physiology Lec
ABC PHY HALL</td><td>Physiology
Lecture DEF</td><td>Biochemistry
Lecture ABC</td></tr>
<tr><td>IT-E</td><td>IT-B</td><td>Physiology
Lecture DEF</td></tr>
<tr><td rowspan="2">11.00
12.00</td><td>Biochemistry
Lecture ABC</td><td>Physiology
Lecture ABC</td><td>Physiology
Lecture ABC</td></tr>
<tr><td>Physiology
Lecture DEF</td><td>Biochemistry
Lecture DEF</td><td>Anatomy
Lecture DEF</td></tr>
<tr><td rowspan="2">12.00
02.00</td><td rowspan="2">ANATOMY
Dissection &
Demonstration
All Groups</td><td rowspan="2">ANATOMY
Dissection &
Demonstration
All Groups</td><td rowspan="2">ANATOMY
Dissection &
Demonstration
All Groups</td><td rowspan="2">ANATOMY
Dissection &
Demonstration
All Groups</td><td><u>12.00-01.00</u>
Anatomy
Lecture ABC</td></tr>
<tr><td><u>12.00-01.00</u>
Biochemistry
Lecture DEF</td></tr>
<tr><td rowspan="2">02.00
03.00</td><td>Community Med
Bio Medical Ethics/
Behavioral Sciences
Lecture DEF</td><td>Community Med
Bio Medical Ethics/
Behavioral Sciences
Lecture ABC</td><td rowspan="2">*****
*****</td><td rowspan="2">*****
*****</td><td rowspan="2">JUMMA
PRAYER
BREAK
OFF</td></tr>
<tr><td>IT Lecture ABC</td><td>IT Lecture DEF</td></tr>
</table>

PBL/ SKILL LAB SCHEDULE

DATE	A	B	C	DATE	D	E	F
29-03-2021	ANA	PHY	BIO	30-03-2021	ANA	PHY	BIO
05-04-2021	SKILL LAB	ANA	PHY	06-04-2021	SKILL LAB	ANA	PHY
12-04-2021	BIO	SKILL LAB	ANA	13-04-2021	BIO	SKILL LAB	ANA
19-04-2021	PHY	BIO	SKILL LAB	20-04-2021	PHY	BIO	SKILL LAB
26-04-2021	ANA	PHY	BIO	27-04-2021	ANA	PHY	BIO
17-05-2021	SKILL LAB	ANA	PHY	18-05-2021	SKILL LAB	ANA	PHY
24-05-2021	BIO	SKILL LAB	ANA	25-05-2021	BIO	SKILL LAB	ANA
31-05-2021	PHY	BIO	SKILL LAB	01-06-2021	PHY	BIO	SKILL LAB
07-06-2021	ANA	PHY	BIO	08-06-2021	ANA	PHY	BIO
14-06-2021	SKILL LAB	ANA	PHY	15-06-2021	SKILL LAB	ANA	PHY
21-06-2021	BIO	SKILL LAB	ANA	22-06-2021	BIO	SKILL LAB	ANA
28-06-2021	PHY	BIO	SKILL LAB	29-06-2021	PHY	BIO	SKILL LAB
05-07-2021	ANA	PHY	BIO	06-07-2021	ANA	PHY	BIO
12-07-2021	SKILL LAB	ANA	PHY	13-07-2021	SKILL LAB	ANA	PHY
26-07-2021	BIO	SKILL LAB	ANA	27-07-2021	BIO	SKILL LAB	ANA
02-08-2021	PHY	BIO	SKILL LAB	09-08-2021	PHY	BIO	SKILL LAB
09-08-2021	ANA	PHY	BIO	10-08-2021	ANA	PHY	BIO
23-08-2021	SKILL LAB	ANA	PHY	24-08-2021	SKILL LAB	ANA	PHY
30-08-2021	BIO	SKILL LAB	ANA	31-08-2021	BIO	SKILL LAB	ANA
06-09-2021	PHY	BIO	SKILL LAB	07-09-2021	PHY	BIO	SKILL LAB
13-09-2021	ANA	PHY	BIO	14-09-2021	ANA	PHY	BIO
20-09-2021	SKILL LAB	ANA	PHY	21-09-2021	SKILL LAB	ANA	PHY
27-09-2021	BIO	SKILL LAB	ANA	28-09-2021	BIO	SKILL LAB	ANA
04-10-2021	PHY	BIO	SKILL LAB	05-10-2021	PHY	BIO	SKILL LAB
11-10-2021	ANA	PHY	BIO	12-10-2021	ANA	PHY	BIO
18-10-2021	SKILL LAB	ANA	PHY	19-10-2021	SKILL LAB	ANA	PHY
25-10-2021	BIO	SKILL LAB	ANA	26-10-2021	BIO	SKILL LAB	ANA
01-11-2021	PHY	BIO	SKILL LAB	02-11-2021	PHY	BIO	SKILL LAB
08-11-2021	ANA	PHY	BIO	09-11-2021	ANA	PHY	BIO
15-11-2021	SKILL LAB	ANA	PHY	16-11-2021	SKILL LAB	ANA	PHY

DEPARTMENT OF ANATOMY

S #	TEACHING FACULTY		
01	**PROFESSOR AND CHAIRPERSON:** Prof Samreen Memon		
02	**ASSOCIATE PROFESSOR :** Dr. Pushpa Goswami		
	ASSISTANT PROFESSORS		
03	Dr. Farhana Rajpar	04	Dr. Pashmina Shaikh
	LECTURERS		
05	Dr. Waseemullah Shaikh	12	Dr. Fahmeeda Gul Saher
06	Dr. Gul	13	Dr. Sadia Effendai
07	Dr. Abdul Hadi Abbassi	14	Dr. Bibi Rabia
08	Dr. Fouzia Shaikh	15	Dr. Khalida Parveen
09	Dr. Abdul Rauf Memon	16	Dr. Nayab Shahid
10	Dr. Muhammad Yaqoob Shahani	17	Dr. Rabia Bughio
11	Dr. Umbreen Bano	18	Dr. Sana Shabbir

SUBJECT: EMBRYOLOGY

LEC. #	TOPICS
1	Development of Digestive System
2	**Foregut:** Esophagus, Stomach
3	Duodenum **-** Clinical correlates
4	Liver and Gall Bladder
5	Pancreas: Clinical correlates
6	**Midgut:** Clinical correlates
7	**Hindgut**: Clinical correlates
8	**Urinary System :**Kidney Clinical correlates
9	Urinary Bladder, Urethra- Clinical correlates
10	**Genital System:** Testis
11	Ovaries
12	Genital ducts in male
13	Genital ducts in female
14	Clinical correlates
15	External genitalia in male Clinical correlates
16	External genitalia in female Clinical correlates
17	Descends of testes & ovaries Clinical correlates
18	**Head And Neck:** Introduction of Pharyngeal Arches
19	Derivatives of Pharyngeal Arches
20	Pharyngeal pouches
21	Pharyngeal Clefts
22	Clinical correlates: Birth defects involving the pharyngeal region
23	Face I
24	Face II - Inter maxillary segment
25	Tongue
26	Thyroid and Thymus Glands + Clinical correlates
27	Palate
28	Nasal cavities
29	Development of mandible
30	Teeth
31	Clinical correlates Tooth Abnormalities
32	Eye

33	Ear
34	Central Nervous System: Formation of neural plate and tube
35	Histogenesis of nervous system
36	Development of Spinal cord
37	Neural tube defects
38	Brain: Rhombencephalon: Hindbrain
39	Brain: Cerebellum
40	Brain: Mesencephalon: Midbrain
41	Brain: Prosencephalon: Forebrain
42	Clinical correlates
43	Cranial nerves
44	Autonomic nervous system
45	Clinical correlates

SUBJECT: NEUROANATOMY

1	Introduction and general organization of nervous system
2	Review of cranial cavity and meninges
3	Spinal cord
4	Brain Stem
5	Review of Cranial cavity and meninges
6	Cerebellum
7	Diencephalon-Thalamus
8	Hypothalamus
9	Cerebrum : Topographic anatomy (Sulci and gyri in lobes)
10	Cerebrum: (Internal structure- White matter)
11	Cerebrum: (Basal nuclei)
12	Cerebrum: (Limbic system)
13	Blood supply
14	Radiology

SUBJECT: GROSS ANATOMY: ABDOMEN + PELVIS + PERINEUM

DEMONSTRATION/ DISSECTION CLASSES (IN GROUPS)	
GROSS ANATOMY: ABDOMEN	
1	**"ANTERIOR ABDOMINAL WALL"** Surface Topography of abdomen
2	**Structure of the anterior abdominal wall:** Skin, superficial, deep fascia & Muscles
3	Nerves, arteries, veins, lymphatic drainage and clinical correlates
4	**Rectus Sheath:** Structure, content and clinical correlates
5	**Inguinal canal :**Structure, walls, functions, mechanism and clinical correlates
6	**Scrotum, Testes, Epididymis & vas deference:** Scrotal wall, Spermatic cord with its coverings and clinical correlates
7	Testes, Epididymis ,vas deference and clinical correlates
8	**"ABDOMINAL CAVITY"** **General arrangement of abdominal viscera**
9	**Peritoneum:** General arrangement, Ligaments, omenta and mesenteries
10	Pouches, recesses, spaces and gutters, Nerve supply, functions and clinical correlates
11	**Gastrointestinal Tract:** Abdominal Esophagus , stomach and clinical correlates
12	Small intestine- Duodenum, Jejunum , Ileum and clinical correlates
13	Liver, portal System and clinical correlates
14	Gall Bladder, Biliary system and clinical correlates

15	Pancreas, Spleen and clinical correlates
16	Large Intestine-cecum, colon, appendix and clinical correlates
17	Blood, nerve and lymphatic drainage of GIT
18	**"POSTERIOR ABDOMINAL WALL"** **Structure of the posterior abdominal wall:** Layers, Peritoneal lining , muscles and lumbar arteries
19	**Urinary tract:** Kidney, Ureter, supra renal glands and clinical correlates
20	**Blood Vessels:** Abdominal Aorta and inferior vana cava
21	**Nerves:** Lumbar plexus, Sympathetic trunk, aortic plexus and clinical correlates
22	RADIOLOGY.SURFACE ANATOMY AND CLINICAL SCENARIO
	GROSS ANATOMY: THE PELVIS AND PERINEUM
23	**"PELVIC WALLS"** **Introduction to pelvis:** Pelvic walls, False & True pelvis, Pelvic inlet & outlet
24	**Structure of pelvic walls:** Pelvic fascia, Pelvic diaphragm
25	Joints and sex difference of pelvis
26	**"PELVIC CAVITY"** **Pelvic viscera of the gastrointestinal tract:** Sigmoid colon, Rectum
27	**Pelvic viscera of the excretory tract:** Urinary bladder
28	**Male genital organs:** Prostate, Seminal vesicles, Terminal part of ductus deferens, Ejaculatory duct
29	**Female genital organs:** Ovaries, Fallopian tubes, Uterus
30	**Vessels:** Arteries (internal iliac artery) + veins (internal iliac vein)
31	**Nerves:** Sacral plexus & Autonomic nerves
32	**Lymphatic drainage:** Lymphatic drainage of pelvis
33	**"PERINEUM"** **Introduction to perineum:** Introduction, Urogenital & Anal triangles, Urogenital diaphragm, Deep & superficial perineal pouches, Perineal body
34	**Perineal walls:** Ischiorectal fossa, Pudendal canal
35	**Perineal viscera of the gastrointestinal tract:** Anal canal
36	**Perineal viscera of the excretory tract:** Male urethra, Female urethra
37	**Male genital organs:** Penis, Bulbourethral glands
38	**Female genital organs:** Vagina, Greater vestibular glands, Clitoris
39	**Vessels & Nerves:** Arteries (internal pudendal artery), veins (internal pudendal vein), nerves (Pudendal nerve), Lymphatic drainage of perineum
40	**RADIOLOGY,SURFACE ANATOMY AND CLINICAL SCENARIO**

SUBJECT: GROSS ANATOMY: HEAD & NECK

DEMONSTRATION/ DISSECTION CLASSES (IN GROUPS)	
DEM. #	**TOPICS**
41	**Introduction of Head & Neck** **Skull:** Norma verticals & occipitals
42	**The Scalp:** Structure, Blood Nerve supply and Lymphatic drainage
43	**Skull:** Norma frontals **+** Muscles of face
44	**Face:** Blood supply & venous drainage
45	Nerve supply & Lymphatic drainage
46	**Parotid region**
47	**Triangles of the neck:** Posterior triangle of Neck and contents
48	Anterior triangle of Neck and contents
49	Suboccipital triangle of Neck and contents
50	**Cranial cavity:** Anterior, Middle & Posterior cranial fossae
51	Meninges + Dural Venous sinuses and pituitary gland
52	**Orbit:** Bony orbit

53	Extra ocular muscles
54	Orbit & Its contents (excluding eye ball)
55	**Deep dissection of neck** Viscera's of the neck—Trachea, Esophagus
56	Neurovascular bundle—Subclavian artery & vein
57	Glands of the neck—Thyroid and parathyroid glands
58	Cervical vertebrae and Prevertebral region + Root of the neck
59	**Skull:** Norma Lateralis: Temporal fossa
60	Infratemporal fossa
61	Pterygopalatine fossa
62	**Skull:** Norma basalis, Oral cavity and tongue
63	Palate + Tonsils
64	Pharynx
65	Nose
66	Larynx
67	Eye
68	Ear

SUBJECT: HISTOLOGY PRACTICALS (IN GROUPS)

Practical #	TOPICS
1	Chapter: Gastrointestinal tract Introduction Structure of GIT, Basic mucosal forms, Components of wall of the GIT
2	Esophagus
3	Stomach
4	Small intestine: Duodenum
5	Colon
6	Appendix
7	Chapter: Biliary System: Liver
8	Gall Bladder +Exocrine Pancreas
9	Chapter: Urinary System: Kidney
10	Ureter, Urinary Bladder
11	Chapter: Male Reproductive System: Testis
12	Epididymis, ductus deference , Seminal vesicle
13	Prostate gland
14	Chapter: Female Reproductive System: Uterus
15	Fallopian tubes , Ovary
16	Vagina
17	Oral Tissue: Introduction, Palate, Lip, Tooth
18	Salivary Glands
19	Tongue
20	Respiratory System: Nasal cavity
21	Larynx and Pharynx
22	Endocrine glands: Pituitary gland
23	Thyroid and Parathyroid glands
24	Adrenal glands and Endocrine Pancreas
25	**Nervous tissue:** Neuroglias
26	Nerves
27	Ganglia
28	**Central Nervous System:** Spinal Cord
29	Cerebellum
30	Cerebrum

DEPARTMENT OF PHYSIOLOGY

S #	TEACHING FACULTY		
01	**PROFESSOR AND CHAIRPERSON :** Prof. Salma Farrukh Memon		
02	**PROFESSOR :** Prof. Khalida Shaikh		
03	**ASSOCIATE PROFESSOR :** Dr. Rubina Ahmedani		
	ASSISTANT PROFESSORS	06	Dr. Arslan Uqaili
04	Dr. Tazeen Shah	07	Dr. Hina Riaz
05	Dr. Keenjhar Rani	08	Dr. Saima Naz Shaikh
	LECTURERS	12	Dr. Aqsa Naeem
09	Dr. Fayaz Ahmed Memon	13	Dr. Moomal
10	Dr. Urooj Bhatti	14	Dr. Rubina Zareen
11	Dr. Sarwat Batool Memon	15	Dr. Juwairiyah Hameed Sheikh

CHAPTER: GASTRO INTESTINAL TRACT

PROF SALMA MEMON, PROF KHALIDA SHAIKH, DR KEENJHAR RANI DR ARSALAN UQAILI

1	General Principles Of Gastro Intestinal Functions
2	Mastication & Deglutition
3	Composition, Functions & Regulation of Saliva.
4	Motor Function Of Stomach
5	Composition, Functions, Regulation Of Gastric Secretion
6	Movements of Small & Large Intestine
7	Composition, Functions, Regulation of Pancreatic Juice.
8	Composition, Functions, Regulation of Intestinal Secretion.
9	Composition, Functions of Bile & Functions Of Gallbladder.
10	Movements of Colon & Defecation
11	Digestion and Absorption of Food
12	Physiology of GI Disorder

CHAPTER: ENDOCRINE SYSTEM

13	Introduction to Endocrinology.
14	Mechanisms of action of hormones.
15	Hormones of Anterior pituitary.
16	Hormones of Posterior pituitary.
17	Thyroid hormones I
18	Thyroid hormones II
19	Adrenocortical hormones: Glucocorticiods
20	Mineralocorticoids: Aldosterone
21	Adrenal Medulla
22	Hormones of Pancreas and Diabetes mellitus.
23	Parathyroid hormones & calcitonin hormones.
24	Body Temperature Regulation

CHAPTER: REPRODUCTION

25	Physiological Anatomy of the male sexual organs
26	Spermatogenesis Semen
27	Testosterone
28	Physiological Anatomy of the female sexual organs
29	Puberty, menarche & menopause
30	Female monthly sexual cycle
31	Functions of ovarian hormones
32	Pregnancy & lactation
33	Contraception

CHAPTER: BODY FLUIDS AND KIDNEY

34	Body fluid compartments and Edema
35	Functional Anatomy of Kidney AND Homeostatic functions of kidney
36	Urine formation: Overview
37	Glomerular filtration
38	Determination of the GFR and Renal Blood Flow
39	Re-absorption & secretion along different parts of the Nephron I
40	Re-absorption & secretion along different parts of the Nephron II
41	Hormonal control of tubular re-absorption & secretion
42	Micturition
43	Mechanism of concentrated urine
44	Mechanism of Dilute urine
45	Role of kidneys in regulation of blood pressure
46	Acidification of urine
47	Regulation of Acid-Base Balance I
48	Regulation of Acid-Base Balance II

CHAPTER: ORGANIZATION OF NERVOUS SYSTEM & BASIC FUNCTIONS OF SYNAPSES

49	Organization of The Nervous System, Structure & Function Of Neuron
50	Neuroglia & their Functions.
51	Synapse its types & mechanism of synaptic Transmission
52	Some properties of synapses, Neurotransmitters

CHAPTER: GENERAL SENSORY SYSTEM

53	Sensations, Sensory receptors & their types. Transduction of sensory stimuli into nerve impulses
54	Some properties of sensory receptors
55	Nerve fibers & their physiological Classification
56	Sensory pathways - Dorsal column-medial lemniscal system
57	Anterolateral system
58	Pain, types of pain & pain pathways
59	Pain suppression or analgesia system
60	Referred pain, visceral pain, Brown-Sequard syndrome
61	Headache & thermal sensations.

CHAPTER: SPECIAL SENSES

62	Eye structure and functions
63	Reflection, R. Index, Ref. Power, Focal length
64	Errors of refraction
65	Fluid System of Eye
66	Retina-structure & function
67	Rhodopsin-Retinal visual cycle & excitation of Rods (photo transduction)
68	Visual pathways
69	Visual field defects / Pupillary & accommodation reflex
70	Sense of hearing-Ear-structure I
71	Sense of hearing-Ear-structure II
72	Central Auditory mechanism.
73	Chemical senses-Taste & Smell.

CHAPTER: NERVOUS SYSTEM (MOTOR & INTEGRATIVE NEUROPHYSIOLOGY)

74	Reflex Action & Reflex Arc
75	Spinal Cord and Cord Reflexes
76	Motor cortex & corticospinal tracts (Pyramidal)
77	Extra pyramidal system
78	Cerebellum & its functions
79	Clinical abnormalities of Cerebellum
80	Basal Ganglia, their functions & disorders
81	Functions of specific cortical areas
82	Limbic system & hypothalamus.
83	Sleep, Brain waves
84	General Organization Of The Autonomic Nervous System
85	Effects of Sympathetic & Parasympathetic Stimulation on Specific Organs / Systems
86	Cerebrospinal Fluid System

CHAPTER: GENETIC CONTROL OF PROTEIN SYNTHESIS, CELL FUNCTION AND CELL REPRODUCTION

87	DNA, Gene, Genetic code.
88	RNA & its types, codons & anti codons.
89	Protein synthesis in the cell-I (Transcription)
90	Protein synthesis in the cell-II (Translation)
91	Control of Gene function.
92	Cell Reproduction
93	Mutation, Apoptosis & Cancer

PHYSIOLOGY (PRACTICALS)

GROUP	TEACHER	GROUP	TEACHER
A	**DR. ANEES**	**D**	**DR. A GHAFOOR/ DR.FAIMA**
B	**DR. JEHANZAIB**	**E**	**DR. SHEERAZ/ DR. BABAR**
C	**DR. SALMA SHAIKH**	**F**	**DR. RABIA UAQILI**

PRACTICAL #	TOPICS
01-02	To calculate body mass index (BMI) I II
03-04	How to pass nasogastric tube (N/G tube) I II
05-06	To Record Body Temperature I II
07-08	To Pass Urinary Catheter I II
09-10	Pregnancy test I II
11-13	Power lab I II III
14	Introduction of Cranial Nerves
15	Examination of Olfactory Nerves
16	Examination of Optic Nerves
17	Examination of Occulomotor, Trochlear & Abducent Nerves
18	Examination of Trigeminal Nerves
19	Examination of Facial Nerves
20	Examination of Vestibulocochlear Nerves
21	Examination of Glossopharyngeal & Vagus Nerve
22	Examination of Accessory & Hypoglossal Nerve
23	Examination of Sensory System
24	Introduction of Reflexes & Reflex Arc
25	Examination of Superficial Reflexes
26	Examination of Deep Reflexes
27	Examination of Cerebellum

DEPARTMENT OF BIOCHEMISTRY

S #	TEACHING FACULTY		
01	**PROFESSOR AND CHAIRPERSON: Professor** Dr. Shahida Hassan Memon		
02	**ASSOCIATE PROFESSOR:** Dr. Mubeena Laghari		
	ASSISTANT PROFESSOR:		
03	Dr. Ali Raza Memon	04	Dr. Beenish Ghaffar Memon
	LECTURERS		
05	Dr. Roohi Naz	09	Dr. Ali Karim
06	Dr. Fouzia Shaikh	10	Dr. Maria
07	Dr. Feriha Fatima Khidri	11	Dr. Nosheen Zehra
08	Dr. Abdul Sattar Khan	12	Dr. Sofia

CHAPTER: BIOCHEMISTRY OF DIGESTIVE TRACT

1	Introduction to Digestion and Absorption (Overview ; Definition ; Importance)
2	Digestive Juices: Saliva (composition, functions, daily secretion, regulation, clinical importance)
3	Digestive Juices: Gastric Juice (composition, functions, daily secretion, regulation, clinical importance)
4	Digestive Juices: Pancreatic Juice (composition, functions, daily secretion, regulation, clinical importance)
5	Digestive Juices: Bile Juice (composition, functions, daily secretion, regulation, clinical importance)
6	Digestive Juices: Intestinal Juice (composition, functions, daily secretion, regulation, clinical importance)
7	Digestion and Absorption of Carbohydrates
8	Digestion and Absorption of Proteins
9	Digestion and Absorption of Lipids
10	Clinical Aspects of Digestion and Absorption

CHAPTER: ENDOCRINE

11	Introduction of endocrine/ hormone
12	Hormone synthesis, transportation and action on target cells
13	Classification and Mechanism of action of lipophilic hormones
14	Mechanism of action of hydrophilic hormones
15	Mechanism of action of hydrophilic hormones
16	Hypothalamus
17	Pituitary
18	Thyroid and parathyroid
19	Pancreas
20	Adrenals
21	Sex hormones

CHAPTER: BIOENERGETICS & OXIDATIVE PHOSPHORYLATION

22	Introduction of Bioenergetics : Endergonic and Exergonic reactions
23	Biologic Oxidation and Reduction
24	Methods of electron transferring, Redox Potential, Enzymes and Coenzymes of biologic oxidation and reduction

25	Respiratory Chain and Components of respiratory chain, electron carriers
26	ATP synthesis and theories for ATP synthesis
27	The ATP-Synthetase, their relation to proton pump, PMF, and active transport
28	Uncouplers and Inhibitors of oxidative phosphorylation
29	Shuttle system for transport of cytosolic NADH to mitochondria

CHAPTER: CARBOHYDRATE METABOLISM

30	Introduction of Metabolism
31	Glycolysis
32	The Citric Acid Cycle
33	Gluconeogenesis
34	Cori's cycle
35	Hexose Mono Phosphate Shunt
36	Uronic acid pathway
37	Glycogen Metabolism - Glycogen storage disease
38	Metabolism of Fructose - Sorbitol pathway
39	Metabolism of Galactose - Lactose synthesis
40	Synthesis of Glycosaminoglycans
41	Regulation of Blood Glucose Level

CHAPTER: LIPIDS METABOLISM

42	Mobilization and Transport of Fatty acids
43	Oxidation of Fatty acids: β - oxidation
44	α - oxidation, ω - oxidation, Peroxisomal oxidation
45	Oxidation of Odd number carbon containing fatty acids
46	Oxidation of Unsaturated fatty acids etc
47	Biosynthesis of Fatty acids
48	Synthesis of unsaturated fatty acids (Eicosanoids)
49	Metabolism of Ketone bodies
50	Metabolism of Cholesterol
51	Synthesis & Degradation of Glycerophospholipids and their Metabolic Disorders
52	Synthesis & Degradation of Sphigophospholipids and their Metabolic Disorders
53	Synthesis Triacylglycerol
54	Metabolism of Lipoproteins, their transport, Functions & Importance in Health & Disease

CHAPTER: PROTEIN METABOLISM

55	Introduction to Protein Metabolism (Overview ; Definition ; Importance)
56	Amino acid oxidation, Metabolic fates of amino group, Transamination & Deamination
57	Transport of amino group, Role of Pyridoxal phosphate, Glutamate, Glutamine, Alanine
58	Synthesis and degradation of non-essential amino acids
59	Urea cycle and its Metabolic disorders
60	Nitrogen Balance, Ammonia intoxication
61	Metabolism of individual amino acids (Tyrosine, Phenylalanine, Tryptophane)
62	Metabolism of individual amino acids (Glycine, Methionine, Arginine)
63	Metabolism of individual amino acids (Leucine, Isoleucine, Valine)
64	Inborn errors of AA metabolism: PKU, Alkaptonuria, Albinism, Tyrosinemia, MSUD

CHAPTER: NUCLEOTIDE METABOLISM

65	Metabolism of Purine
66	Metabolism of Pyrimidine
67	Recycling of Purine and Pyrimidine bases
68	Formation of Uric acid and Biochemistry of Gout

CHAPTER: GENETICS

69	Bases of genetics
70	Replication-I
71	Replication-II
72	Transcription
73	RNA processing
74	Reverse transcription
75	Translation
76	Post-transitional modification
77	DNA Repair, Mutation, and Cancers
78	Regulation of Gene Expression-I
79	Regulation of Gene Expression-II
80	Recombinant technology

CHAPTER: SPECIAL CELL FUNCTIONS

81	Liver Function Test
82	Renal Function Test
83	Lipid Profile

SUBJECT: BIOCHEMISTRY (PRACTICALS IN GROUPS)

TEACHERS: ALL LECTURERS	
#	**TOPICS**
1	Spectrophotometric Methods
2	Introduction of Chromatography and Electrophoresis
3	Estimation of Glucose by titration method (Demonstration & Practical)
4	Estimation of free and total Acidity by titration method (Demonstration & Practical)
5	Introduction of Blood Chemistry
6	Estimation of Blood Glucose Level (Demonstration & Practical)
7	Estimation of Serum Cholesterol (Demonstration & Interpretation)
8	Estimation of Serum Cholesterol (Practical performance)
9	Estimation of Serum Albumin Level (Demonstration & Interpretation)
10	Estimation of Serum Albumin Level (Practical performance)
11	Estimation of Serum Urea Level (Demonstration & Interpretation)
12	Estimation of Serum Urea Level (Practical performance)
13	Estimation of Serum Uric acid level (Demonstration & Interpretation)
14	Estimation of Serum Uric acid Level (Practical performance)
15	Estimation of Total Serum Proteins (Demonstration & Interpretation)
16	Estimation of Total Serum Proteins (Practical performance)
17	Estimation of Serum Bilirubin Level (Demonstration & Interpretation)
18	Estimation of Serum Bilirubin Level (Practical performance)
19	BCQs test and practical performance test out of whole course of Practical's

TAGGED SUBJECTS

SUBJECT: INFORMATION TECHNOLOGY (IT)

INCHARGE: MS. ASMA RAZA **TEACHER: MR. FAHEEM SOOMRO**

TOPICS
COMPUTER MAINTENANCE • Data Backup • Data Recovery Software • Disk Format • Scandisk • Disk Defragmentation • File Converter & Compression
SEARCHING TOOLS & TECHNIQUES • Search Engines • Effective Searching Techniques • Accessibility To Medical Research Papers, Articles And Journals
SECURITY • Types of Viruses • Anti-Virus Software • Firewalls • Phishing
SOCIAL NETWORKING • Personalized Google Page (Google Apps) • Twitter • Linked In • Blogger • Word Press
MS WORD **Advance features of MS WORD**
MS EXCEL ▪ Spreadsheet Basics ▪ Formatting Cells ▪ Formulas and Functions ▪ Graphics ▪ Charts ▪ Page Properties and Printing
STATISTICAL PACKAGE (SPSS) • Introduction • Manipulating Data • Descriptive Analysis & Inferential Statistical Analysis

SUBJECT: COMMUNITY MEDICINE

TEACHERS: DR. RAFAINA SHAH+ DR. KANWAL NAZ + DR. SINDHU ALMAS

LEC.	TOPICS
1	Water sources and uses of water
2	Disposal of waste and its public health importance
3	Personal hygiene
4	Cultural factor in health and disease
5	Integrated Management of neonatal and childhood illness (IMNCI)
6	Communicable diseases & infections
7	Food poisoning, diarrhea & dysentery
8	Immunization/ Vaccination
9	Expanded program on Immunization (EPI)
10	Housing and Health

SUBJECT: BIOMEDICAL ETHICS

TEACHER: DR. ZOHEB RAFIQUE MEMON

LEC. #	TOPICS
1	Informed Consent
2	Confidentiality
3	Doctor- Pharmaceutical Sales Representative Relationship
4	Breaking Bad News

SUBJECT: BEHAVIORAL SCIENCES

TEACHER: DR. JAMIL AHMED JUNEJO (ASSISTANT PROFESSOR DEPT OF PSYCHIATRY)

TOPICS
1. Emotions, types of emotion, emotional quotient, concept & utility. 2. Intelligence & its types. Relevance of IQ & EQ in the life of doctor. Emotional intelligence. How to develop? 3. Perception, Definition, Factors affecting perception. 4. Thinking Types and theories of thinking 5. Culture, symptom presentation and culture social support 6. Personality, theories of personality, factors affecting personality development

SUBJECT: APPLIED

(12 LECTURES / CLASSES)

- **6 CLASSES BY MEDICINE FACULTY**
- **6 CLASSES BY SURGERY FACULTY**

SUBJECT: SURGICAL SKILLS [SKILL LAB]

INCHARGE: PROFESSOR ASADULLAH MAKHDOOM

1	Intramuscular Injection	**1**	Arterial Puncture
2	Venipuncture	**2**	Pediatric IV Line
3	I/V cannulation in adult	**3**	Pulse Oxymetry
4	Evaluation	**4**	Evaluation

BOOKS RECOMMENDED

ANATOMY

- Clinical Anatomy by Richard S Snell, Cunningham's Manual of Anatomy
- Wheater's Histology
- Langman's Embryology, Keith L. Moore Embryology

PHYSIOLOGY

- Text Book of Physiology by Guyton & Hall
- Review of Physiology by Ganong
- Physiology Journal for Practical

BIOCHEMISTRY

- Harper's Illustrated Biochemistry. By: Robert k. Murray.
- Textbook of Medical Biochemistry. By: Chatterjee.
- Lippincott's Illustrated Review Biochemistry. By: Champe.
- Textbook of Biochemistry with clinical correlations. By: Devin TM