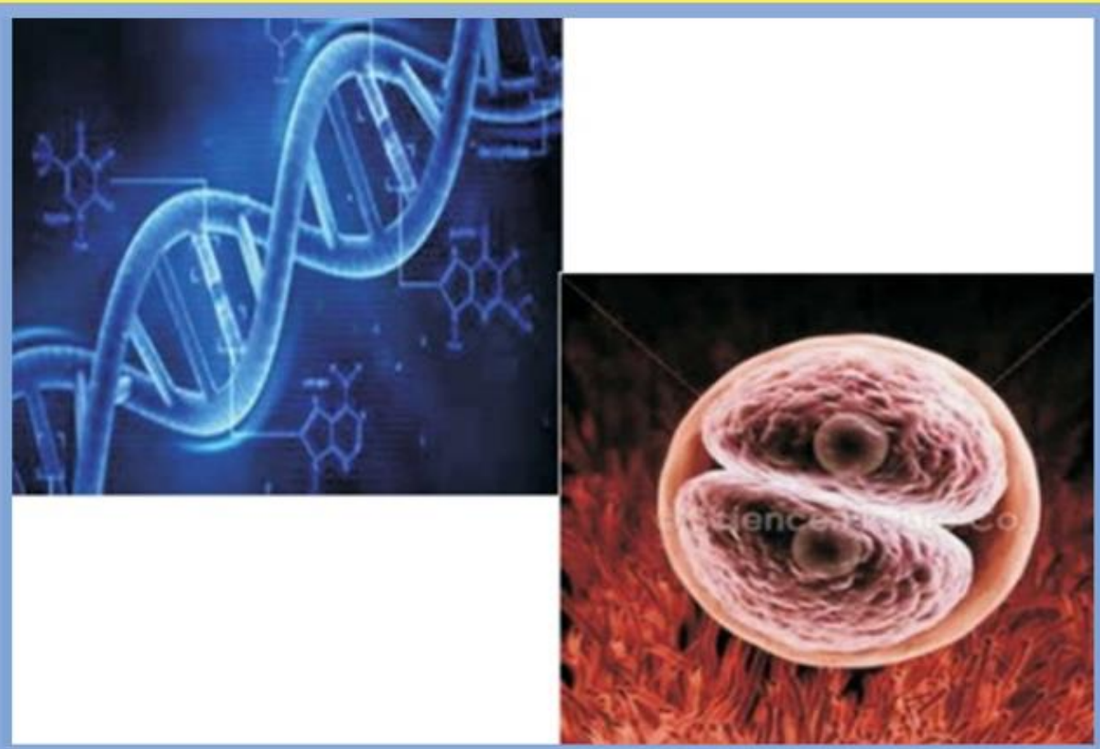
Department of Medical Education (DME)

Foundation Module

Study Guide
First Year MBBS 2022 - 2023



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University Moto, Vision, Values & Goals

RMU Motto

Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

First Year MBBS 2023

Study Guide

Foundation Module

Discipline wise Details of Modular Content

Block	Module	General Anatomy	Embryology	Histology	Gross Anatomy
1	• Anatomy	Introduction To General Anatomy	General Embryology • Introduction To Human Development • Oogenesis • Spermatogenesis • Female Reproductive Cycles • Ovulation And Fertilization • Cleavage And Blastocyst Formation • Development Of Mammary Gland	General Histology • Types Of Epithelium • Specialization Of Apical Cell Surface • Intercellular Junctions and Adhesions • Glandular Epithelium • Histology Of Mammary Gland	• Anatomicomedical Terminologies I • Anatomicomedical Terminologies II (Anatomical Terms And Axis Of Movements) • Anatomicomedical Terminologies III (Cell and Tisues) • Anatomicomedical Terminologies IV (Skin & Body System) • Clavicle • Scapula • Humerus • Anterior Axioappendicular Muscles • Posterior Axioappendicular Muscles • Axilla • Brachial Plexus • Brachial Plexus Injuries • Breast • Sternoclavicular And Acromiclavicular Joints • Radiograph And Surface Anatomy of Axioappendicular Region
	• Biochemistry	• Cell And Cell Organelles, Cell Membrane and Transport Across Cell Membrane, Physicochemical Properties, Enzymes, Cancer, Nucleic Acid Chemistry, Genetics			
	• Physiology	• Functional Organization of The Human Body and Control of the “Internal Environment • The Cell and Its Functions • Genetic Control of Protein Synthesis, Cell Function, And Cell Reproduction • Transport Of Substances Through the Cell Membrane			
	• Vertical components	• The Holy Quran Translation Component			
	• Bioethics & Professionalism	• Introduction to history of medical ethics			

	• Artificial Intelligence	• Introduction to Artificial Intelligence
	• Family Medicine	• Introduction to Family Medicine & its application in health care system
	• Research Innovation (IUGRC)	• Research I Introduction of health research process • Research II characteristic of reserch process • Research III Basis of ethics in health research • Research IV Basics of ethics in medical reserch
	• Behavioral Sciences	• Introduction to Behavioral Sciences • Management of stress
	• Vertical Integration	Clinically content relevant to Foundation module • Opening ceremony (DME) • Introduction To Different Teaching Strategies, Role Of Team Leader Facilitator And Students SGD/LGIS/TBL/PAL/INTERNET & Literature Group activity (DME) • Leadership Professionalism (DME) • Orientation to integrated modular system (DME) • Lecture on feedback (DME) • Mission and vision (DME) • Introduction to Pharmacology • Routs of drug administration (Pharmacology) • Absorption of drugs (Pharmacology) • Factors affecting drug absorption (Pharmacology) • Distribution of drugs (Pharmacology) • Introduction to Pathology • Cellular response to injury (Pathology) • Intracellular accumulations (Pathology) • Pigments (Pathology) • Free radical and reactive oxygen species (Pathology) • Irreversible cell injury/apoptosis (Pathology) • Genetic disorders (Pathology) • Introduction to Community Medicine (Community Medicine) • Introduction to medicine (Medicine) • History of medicine (Medicine) • Medicine and allied subjects (Medicine) • Chromosomal abressions (Medicine) • History taking and general physical examination (Medicine)

Table of Contents

Foundation Module Team

Module Name	:	Foundation Module
Duration of module	:	06 Weeks
Coordinator	:	Dr. Mohtasham Hina
Co-coordinator	:	Dr. Zeneara Saqib
Reviewed by	:	Module Committee

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14.	Focal Person Community Medicine	Dr. Afifa Kulsoom
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar
16.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
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4.	Co-Coordinator	Dr. Uzma kiayani (Senior Demonstrator of Physiology)
5.	Co-coordinator	Dr. Shahrukh Khan (Senior Demonstrator of Biochemistry)

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4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
5.	Editor	Muhammad Arslan Aslam

Module I - Foundation Module

Introduction: In the Foundation Module students will develop understanding of the basic concepts of cell Physiology, Biochemistry, Anatomy, Pathology, Pharmacology, Community medicine and study skills through an integrated course.

Rationale: The foundation module is designed to impart basic knowledge about the normal structure, organization, functions and development of human body. This knowledge will serve as a base on which the student will construct further knowledge about the etiology, pathogenesis and prevention of diseases; the principles of their therapeutics and management.

Module Outcomes

Each student will be able to:

Knowledge

- Acquire the basic science knowledge and terminology necessary to understand the development and functioning of normal structures of human body starting from biochemical level to organ system level, as well as the concepts of diseases in the community and drug dynamics.
  Use technology based medical education including
- **Artifical Intelligence.**
  Appreciate concepts & importance of**:**
- **Family Medicine**
- **Biomedical Ethics**
- **Research.**

Skills

- Identify different anatomical planes and correlate the importance of these with clinical medicine.
- Identify various apparatus used in lab.
- Preparation and identification of microscopic slides.
- Preparation of solutions of various strengths.

Attitude

- Demonstrate **professional attitude, team-building spirit** and **good communication skills.**

This module will run in 6 weeks' duration. The content will be covered through introduction of topics. Instructional strategies are given in the timetable and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

SECTION - I

Terms & Abbreviations

Contents

Tables & Figures

Table1. Domains Of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	**Cognitive Domain:** knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	**Psychomotor Domain:** motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	**Affective Domain:** feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

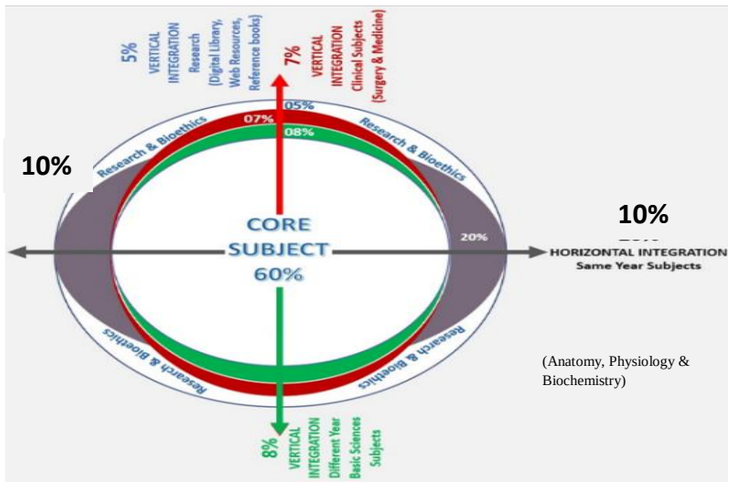


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementaion of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:

  i Will be online on LMS (Mid module/ end of Module)

  ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on

  i. To provide students with a relevant opportunity to see theory in practice

  ii. Require students to analyze data in order to reach a conclusion.

  iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Syntheise & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organise Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by Head of Department Dean Medical education department QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assesssments

Contents

- **Introduction to RMU and Disciplines**
- **Medical Education and Integrated Disciplines**
- **Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)**
- **Large Group Interactive Session:**
  - Anatomy (LGIS)
  - Physiology (LGIS)
  - Biochemistry (LGIS)
- **Small Group Discussions**
  - Anatomy (SGD)
  - Physiology (SGD)
  - Biochemistry (SGD)
- **Self Directed Topic, Learning Objectives & References**
  - Anatomy (SDL)
  - Physiology (SDL)
  - Biochemistry (SDL)
- **Skill Laboratory**
  - Anatomy
  - Physiology
  - Biochemistry

Orientation Week

Introduction to RMU and Disciplines

Medical Education and Integrated Disciplines				
Topic	**Facilitator**	**Learning Objectives**	**Teaching Strategy**	**Assessment Tool**
Introduction to RMU and Allied Hospitals	Vice Chancellor	Honorable VC will welcome and introduce the University and Allied Hospitals.	LGIS	MCQS
		The students will be able to:		
Introduction to Medical Education Department Introduction to Integrated Modular System and Foundation Module	Assistant Director DME	• Introduce DME • Define Medical Education • Discuss its role • Describe CME • Appreciate role of DME in their curriculum • Appreciate role of DME in attendance monitoring • Illustrate the application • Leave submission process • Outline the RMU Curriculum structural organization, (integrated modular system) • Describe Learning resources used in study guides	LGIS	MCQS
Introduction to Basic Sciences	Lecture by HODs	• Define Anatomy • Define Physiology • Define Biochemistry • Define Pathology • Define Community Medicine • Define Forensic Medicine • Define Pharmacology	LGIS	MCQS
Introduction to Medicine & Allied	Lecture by Dean of Medicine & Allied	• Define medicine • Discuss History of medicine • Describe Islamic concepts of medicine • Identify Basic sciences involved in medicine • Identify Clinical subjects and their role	LGIS	MCQS

		• Describe practice of medicine		
Introduction To Teaching And Learning Strategies With Emphasis On SGD/LGIS/TBL (Team base learning)/PAL (Peer Assisted learning)/Internet & Literature Search	Basic Science Team & DME	• Differentiate between various Teaching & Learning strategies • Describe the process • Enlist different roles of students and facilitator in mentioned teaching sessions	LGIS	MCQS
Introduction To Use Of Laboratory Facilities / Equipment And Safety Measures (Biochemistry and Pathology)	Team members (Biochemistry and Pathology)	• Recall precautionary measures mandatory during practical sessions and skill lab • Recall safety measures during blood handling • Demonstrate use of various glass ware • Demonstrate use of lab instruments	LGIS	MCQS
Study Skills-I (Medical Educationist And Behavioral Sciences)	Behaviour Science and DME team member	• Define study skills or study strategies (how to study?) • Describe the: • Methods based on memorization such as rehearsal and rote learning • Methods to retain the content in long term memory • Methods based on communication skills e.g., reading and listening • Principles of TBL & PAL	LGIS	OSPE
Study Skills-II	Behaviour Science and DME team member	• Describe the: • Methods based on condensing information, summarizing and the use of keywords • Methods based on visual imagery • Methods based on acronyms and pneumonics • Methods based on time management, organization and lifestyle changes	LGIS	MCQS
Islam and Medical Science	Mufti Naeem sab	• Discuss role of Islam and importance of Islam in Medical Science	LGIS	MCQS

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End of The Lecture the Student Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to General Anatomy	• Define the term Anatomy and its various branches	C1	LGIS	SAQ MCQ VIVA
	• Define different terminologies related to Anatomy	C1		
	• Describe different Anatomical planes and directions in relation to anatomical position	C1		
	• Elaborate different phases in life span of man	C2		
	• Define basic tissues of human body	C1		
	• Discuss general outlines and functions of basic tissues	C2		
	• Describe formation of different systems of body	C1		
Embryology				
Introduction to Human development	• Discuss significance and importance of studying Embryology	C2	LGIS	SAQ MCQ VIVA
	• Define different terminologies to describe developmental stages	C1		
	• Describe series of critical events that take place during embryonic development	C1		
	• Appreciate difference between embryonic and fetal period	C2		
	• State chromosomal theory of inheritance	C1		
	• Discuss common chromosomal abnormalities	C2		
Oogenesis	• Discuss role of female hormones during oogenesis	C2	LGIS	SAQ MCQ VIVA
	• Describe different stages of oogenesis	C1		
	• Correlate clinical aspects of gametogenesis	C3		
	• To understand the bio-physiological aspects of gametogenesis	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Spermatogenesis	• Define spermatogenesis.	C1	LGIS	SAQ MCQ VIVA
	• Describe different phases of spermatogenesis	C1		
	• Discuss stages of spermiogenesis	C2		
	• Elaborate functions of male hormones during spermatogenesis	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Embryology Female Reproductive	• understand Ovarian and Uterine cycle	C1	LGIS	SAQ
	• Correlate Ovarian and Uterine cycles	C3		

Cycles	• Describe different phases of Ovarian and Uterine cycles	C1		MCQ VIVA
	• Enumerate female sex hormones	C1		
	• Discuss functional significance of female reproductive hormones in reproductive cycles	C2		
	• Discuss the anovulatory cycle in female	C3		
	• Understand the bio-physiological aspects female reproductive cycle	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Embryology Ovulation and Fertilization	• Describe follicular development, ovulation and subsequent events in ovary	C1	LGIS	SAQ MCQ VIVA
	• Give an account on role of leutinizing hormone in ovulation	C1		
	• Discuss capacitation in female genital tract	C2		
	• Describe different phases and results of fertilization	C1		
	• Enlist causes of infertility.	C1		
	• Enlist different technologies of assisted fertilization	C1		
	• Discuss different techniques of assisted reproduction with special emphasis on IVF	C3		
	• Discuss the bio-physiological aspects of ovulation and fertilization	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Embryology Cleavage and Formation of Blastocyst	• Define cleavage	C1	LGIS	SAQ MCQ VIVA
	• Define compaction	C1		
	• Describe blastocyst formation	C1		
	• Understand the bio-physiological aspects of cleavage and blastocyst	C2		
	• Correlate clinical condition of cleavage and blastocyst formation	C3		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Embryology Development of mammary gland	• Describe the Sources of development of mammary gland	C1	LGIS	SAQ MCQ VIVA
	• Discuss different stages of activity of mammary gland	C2		
	• Understand the bio-physiological aspects of mammary gland	C2		
	• Correlate clinical conditions of mammary gland	C3		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		

Histology				
Types of Epithelium	• Define Epithelium	C1	LGIS	SAQ MCQ VIVA
	• Discuss general features of Epithelial cells (basal, apical and lateral surfaces)	C2		
	• Classify epithelium	C2		
	• Explain the histological structure of simple epithelium	C2		
	• Describe the location and functions of simple epithelium	C1		
	• Classify stratified epithelium.	C2		
	• Describe the functions and distribution of stratified epithelium	C1		
	• Appreciate the differences between stratified and psuedostratified epithelium	C2		
	• Describe characteristics of transitional epithelium	C2		
	• Correlate clinical aspects of different types of epithelia	C3		
	• To understand the bio-physiological aspects of different types of epithelia	C3		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Specializations of apical cell surface	• Enumerate different apical modifications of cells	C1	LGIS	SAQ MCQ VIVA
	• Describe histological structure of each apical modification.	C1		
	• Discuss functions of each type of apical modifications	C2		
	• Correlate clinical aspects of Specializations of apical cell surfaces	C3		
	• Understand the bio-physiological aspects of specilizations of apical cell surface	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
	• Enlist causes of infertility.	C1		
Histology Intercellular junctions and adhessions	• Enumerate different cell junctions	C1	LGIS	SAQ MCQ VIVA
	• Describe histological structure of different cell junctions	C1		
	• Understand the bio-physiological aspects of intercellular junctions and adhesions	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Histology Glandular Epithelium	• Define gland	C1	LGIS	SAQ MCQ VIVA
	• Compare between exocrine and endocrine glands with examples	C2		
	• Classify glands on the basis of morphology, secretory product, and mode of secretion	C2		
	• Understand the bio-physiological aspects of glands	C2		
	• Able to read a relevant research article	C3		

	• Know to use digital library	C3		
Histoloy Development and histology of mammary gland	• Describe the Sources of development of mammary gland	C1	LGIS	SAQ MCQ VIVA
	• Discuss the ultra structure of mammary gland	C1		
	• Discuss different stages of activity of mammary gland	C2		
	• Understand the bio-physiological aspects of mammary gland	C2		
	• Correlate clinical conditions of mammary glang	C3		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		

Physiology Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Introduction to Physiology & Physiology Department	• Introduce faculty members	C1	LGIS SGD	SAQ MCQ VIVA
	• Define physiology	C2		
	• Classify different branches of physiology	C2		
	• Explain the importance of physiology in medical and clinical sciences	C1		
Cell physiology & Homeostasis	• Understand functional organization of human body from cell to systems	C2	LGIS SGD	M SAQ MCQ VIVA
	• Differentiate between prokaryotes and eukaryotes.	C2		
	• Discuss salient features of cell theory	C2		
	• Define homeostasis	C1		
	• Describe homeostatic mechanisms of the major functional systems.	C1		
Concept of Body Fluid and Internal Environment	• Describe distribution of total body water	C1	LGIS SGD	SAQ MCQ VIVA
	• Enlist the proportion of intra cellular and extra cellular fluids.	C1		
	• Differentiate between ECF & ICF	C2		
	• Recall Physical characteristics of normal ECF constituents	C1		
	• Understand the concept of internal environment (which student can differentiate for unicellular and multi cellular organisms.)	C2		
Homeostatic Control System I	• Describe the characteristic of control system of the body.	C1	LGIS SGD	SAQ MCQ VIVA
	• Enlist four control mechanisms of body	C1		
	• Understand the mechanism of positive feedback, negative feedback, feed forward control and adaptive control with examples.	C2		

Homeostatic Control System II	• Recall control mechanisms	C1	LGIS SGD	SAQ MCQ VIVA
	• Give examples	C1		
	• Compare and contrast feed forward and adaptive mechanisms	C2		
	• Define gain of control system	C1		
	• Comprehend gain of the control system	C2		
	• Calculate gain of the feedback system and understand the significance of sign in the formula	C3		
Cellular organelles and cell functions	• Describe cytoskeleton & cell locomotion	C1	LGIS Group presentations	SAQ MCQ VIVA
	• Discuss functions of cilia and amoeboid movement	C2		
	• Describe the mechanism of ATP generation	C1		
	• Enlist three major processes of ATP consumption in the body	C1		
	• Understand cell ingestion and other independent roles of cell	C2		
Cell Membrane and Cell Organelles I & II	• Enlist functions of ER, golgi apparatus ,lysosome & perxosome, mitochondria	C1	LGIS SGD Group presentations	SAQ MCQ VIVA
	• Compare and contrast RER & SER, lysosomes & peroxisomes	C2		
	• Understand Docking mechanism	C2		
	• Discuss physiological importance of mitochondria & ATP	C2		
	• Describe the structure of cell membrane: fluid mosaic model	C1		
	• Enlist functions of cell membrane	C1		
	• Enlist membrane bound and non-membrane bound organelles	C1		
	• Differentiate between cytoplasm and cytosol	C2		
Cell membrane Ion channels, Transport across the cell membrane: Diffusion	• Enlist various types of ion channels	C1	LGIS SGD	SAQ MCQ VIVA
	• Enumerate modes of transport mechanism across the cell membrane	C1		
	• Define and discuss factors affecting diffusion	C1		
Transport across cell membrane: Osmosis	• Recall transport mechanism across the cell membrane with special emphasis on osmosis and osmotic pressure	C1	LGIS SGD	SAQ MCQ VIVA
	• Recall factors affecting osmosis	C1		
	• Comprehend the concept of moles and osmoles	C2		
	• Recall osmolarity of body fluids	C1		
	• Discuss tonicity	C2		
	• Comprehend concept of isotonic, hypertonic and hypotonic	C2		
Transport across	• Define active transport	C1	LGIS	SAQ

cell membrane: Active transport I & II	• Classify active transport	C2	SGD	MCQ VIVA
	• Comprehend various types of active transport with examples with special emphasis on Na-K pump	C2		
Structure of nucleus and ribosomes, Cell Division	• Describe structure of nucleus and ribosome	C1	LGIS PBL	SAQ MCQs VIVA
	• Discuss vaults	C2		
	• Understand basic concepts about DNA and	C2		
	• RNA	C1		
	• Recall various types of RNA and their functions	C1		
	• Enlist and Draw steps of mitosis and meiosis	C2		
	• Comprehend role of different parts of chain of DNA as genes like TATA box			
Genetics Transcription & Translation	• Define & Explain Genetics, Transcription & Translation		LGIS PBL	SAQ MCQs VIVA
	• Describe Genetic control of protein synthesis			
	• Differentiate between apoptosis & Necrosis			
Cellular control mechanism ,Cell cycle, Programmed cell death	• Describe different cellular control mechanisms regarding gene regulation	C1	LGIS PBL	SAQ MCQs VIVA
	• Explain Cell differentiation, apoptosis and cellular changes in cancer	C2		
Intracellular communication and cell junctions	• Describe the structure of various intracellular connections	C1	LGIS SGD	SAQ MCQ VIVA
	• Give the physiological importance of cell junctions	C1		
Signal Transduction	• Describe the various 2nd messenger systems	C1	LGIS	SAQ MCQ VIVA
	• Discuss physiological significance	C2		

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning domain	Teaching strategy	Assessment tool
Cell organelles				
Cell and cell organelles	• Explain composition of normal cell	C2	LGIS	SAQ MCQ VIVA
	• Describe methods to separate different organelles of cell • Describe structure, functions and marker enzymes of ER & Golgi	C2 C2		
	• apparatus • Describe structure, functions and marker enzymes of lysosome, peroxisome & ribosome • Describe structure, functions and marker enzymes of mitochondria and Nucleus • Illustrate the clinical conditions and congenital defects of cell organelles	C2 C2 C3		
Cell membrane and transport across cell membrane				
Cell membrane	• Explain composition of cell membrane • Understand fluid mosaic model • Describe functions performed by each component	C2 C2 C2	LGIS	SAQ MCQ VIVA
Functions of cell membranes	• Discuss functions & importance of cell membrane	C2	LGIS	SAQ MCQ VIVA
Transport across cell membrane	• Explain transport of various substances by active and passive transport, diffusion, phagocytosis, endocytosis and exocytosis • Correlate the clinical disorders with defective transport across cell membrane	C2 C3	LGIS	SAQ MCQ VIVA
Physicochemical properties of cell				
Osmosis, osmotic pressure and oncotic pressure	• Define osmosis and osmotic pressure. • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. • Correlate oncotic pressure with clinical scenarios	C1 C2 C3	LGIS	SAQ MCQ VIVA
Phenomenon of viscosity, surface tension.	• Define phenomenon of viscosity, surface tension. • Explain Biochemical applications and methods to measure them.	C1 C2	LGIS	SAQ MCQ VIVA
Donnan equilibrium, adsorption and	• Define Donnan equilibrium, adsorption and ion exchange resins. • Describe their effects on tissue fluids and biochemical importance	C1 C2	LGIS	SAQ MCQ VIVA

ion exchange resins				
Water and pH	• Define pH, Pka, body buffer • Discuss water distribution in the body • Understand dehydration and overhydration	C1 C2 C3	LGIS	SAQ MCQ VIVA
Enzymes				
Enzymes	• Define Enzymes. • Explain general functions of enzymes. • Differentiate between coenzyme and cofactors	C1 C2 C2	LGIS	M SAQ MCQ VIVA
Mechanism of enzyme action	• Describe different mechanisms of enzyme action.	C2	LGIS	SAQ MCQ VIVA
Classification of enzymes	• Discuss different classes of Enzymes	C2	LGIS	SAQ MCQ VIVA
Properties of Enzymes	• Elaborate the Properties of Enzymes such as specificity for substrate and stereo specificity.	C2	LGIS	SAQ MCQ VIVA
Factors affecting Enzyme action	• Discuss different factors which increase or decrease the activity of enzymes	C2	LGIS	SAQ MCQ VIVA
Enzyme inhibitors	• Describe enzyme inhibitors and how the activity of the regulatory enzymes can be modulated for benefit of body	C2	LGIS	SAQ MCQ VIVA
Marker enzymes	• Interpret the role of measuring activity of different enzymes in the diagnosis and prognosis of different diseases	C3	LGIS	SAQ MCQ VIVA
Enzyme as medicines	• Interpret the role of Enzyme as medicine and their effects on body.	C3	LGIS	SAQ MCQ VIVA
Nucleic acids.	• Explain biochemical aspects of Nucleic acids • State analogs of Nucleic acids	C2	LGIS	SAQ MCQ VIVA
DNA	• Explain structure and biological importance of DNA, types of DNA • Differentiate between DNA &RNA	C2 C2	LGIS	SAQ MCQ

				VIVA
RNA	• Explain structure, types and functions of RNA	C2	LGIS	SAQ MCQ VIVA
Replication	• Describe mechanism of replication of prokaryotes & Eukaryotes	C2	LGIS	SAQ MCQ VIVA
Transcription	• Describe mechanism of Transcription of prokaryotes & Eukaryotes	C2	LGIS	SAQ MCQ VIVA
Translation	• Discuss genetic code • Describe mechanism of Translation in prokaryotes & Eukaryotes • Illustrate mechanism of action of antibiotics at different stages of translation	C2 C2 C3	LGIS	SAQ MCQ VIVA
DNA damage & Repair	• Describe mechanism of DNA damage & Repair • Apply knowledge of DNA repair mechanisms in related clinical cases	C2 C3	LGIS	SAQ MCQ VIVA
PCR	• Define PCR • Explain mechanism and indications of PCR	C1 C2	LGIS	SAQ MCQ VIVA
Cancer	• Explain biochemical basis of cancer	C2	LGIS	SAQ MCQ VIVA

Anatomy Small Group Discussion (SGDs)

Demonstration/Dissection	At The End Of The Demonstration Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tool
Anatomicomedical terminology I (anatomical position and planes)	• Describe different anatomical planes of human body and correlate with radiological sections	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Demonstrate anatomical position of human body	P		
Anatomicomedical terminology(anatomical terms and axis of movements)-II	• Define different terms related to body parts	C1	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe axis of movement	C1		
	• Demonstrate axis of movement	P		
	• Able to read a relevant research article			
	• Know to use digital library	C3		
Anatomicomedical terminology -III(cell and tissues)	• Define cell	C1	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Define tissue	C1		
	• Describe basic tissues of human body	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Anatomicomedical terminology (skin and body systems)	• Describe general organization of different systems of body	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Discuss concepts of skin and fascia	C1		
	• Describe the classification of blood vessels	C2		
	• Describe the concepts of divisions of nervous system	C1		
	• Describe the formation of spinal nerve	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
Clavicle	• Determine the side	C2	Dissection Skill lab SGD	MCQ SAQ VIVA
	• Demonstrate anatomical position, general features, attachments and articulations (medial and lateral).	P		
	• Describe Intramembranous development and cleido-cranial dysostosis.	C3		

	• Elaborate pectoral girdle formation movement and dislocation.	C3		OSPE
	• Describe ossification in detail and Fracture Of clavicle.	C3		
	• Know to use digital library	C3		
	• Able to read a relevant research article	C3		
Scapula	• Determine the side	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Demonstrate anatomical position, general features, attachments, and articulation. (clavicle and shoulder joints)	P		
	• Describe scapular anastomosis and its clinical significance	C3		
	• Demonstrate Scapular movements.	P		
	• Able to read a relevant research article • Able to use digital library.	C3		
Humerus	• Determine the side	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Demonstrate anatomical position, general features, attachments and articulation (shoulder and elbow).	P		
	• Describe the importance of anatomical and surgical neck of humurus	C1		
	• Correlate axillary, radial, median and ulnar nerve damage with respect to various fractures of humerus.	C2		
	• Describe Significance of bicipital groove, angle of humeral torsion and carrying angle	C1		
	• Discuss Ossification and fractures	C3		
	• Able to read a relevant research article and use digital library	C3		
Anterior axioappendicular region	• Describe Superficial fascia with cutaneous nerve and vessels of anterior axioappendicular region and tabulate muscles of the anterior axioappendicular region	C1	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Understand the bio-physiological aspects of anterior axioappendicular region.	C3		
	• Able to read a relevant research article and use digital library	C3		
Posterior axioappendicular muscles	• Tabulate muscles of the pectoral region (origin, insertion, nerve supply, action and applied).	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Identify and describe the pectoral and clavipectoral fascia. •	C2 C3		
	• Know to use digital library	C3		
	Able to read a relevant research article	C3		

Axilla	• Define axilla	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe its boundaries,			
	• Enumerate the Contents of axilla, (axillary artery with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus).	C2		
	• Describe the clinical significance of axillary lymph nodes	C3		
	• Able to read a relevant research article • Know to use digital library	C3		
Brachial plexus	• Describe the formation of brachial plexus its roots and trunks.	C1	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe the origin and root value of different nerves arising	C2		
	• Able to read a research article on brachial plexus	C3		
	• Able to use digital library	C3		
Brachial plexus injuries	• Describe the different neurological deficits arising as a result of damaged to roots, trunks and branches of brachial plexus at different levels.	C3	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe the origin and root value of different nerves arising	C3		
	• Able to read a research article on brachial plexus • Know to use digital library	C3		
Breast	• Describe the extent of breast	C1	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe the relations of breast	C2		
	• Describe structure of gland.	C1		
	• Discuss the blood supply, venous drainage and lymphatics.	C1		
	• Correlate Clinical picture and lymphatic spread in breast carcinoma.	C3		
	• Discuss congenital anomalies of breast	C3		
	• Able to read a relevant research article • Know to use digital library	C3		
Sternoclavicular and acromioclavicular joints	• Classify joints and dicuss the attachment of capsule and ligaments and discuss the different movement on these joints alongwith muscles involved in these movements.	C2	Dissection Skill lab SGD	MCQ SAQ VIVA OSPE
	• Describe neurovascular supply.	C2		
	• Able to read a relevant research article	C3		
	• Know to use digital library	C3		
	• Know to use digital library	C3		
Radiographs/surface anatomy of axioappendicular region	• Discuss the surface anatomy of axioappendicular region.	C2	Dissection Skill lab SGD	MCQ VIVA OSPE
	• Able to interpret the normal radiologic appearance of bones and visceras in axioappendicular region.	C3		

Physiology Small Group Discussion (SGDs)

Topic	Learning Objectives	Learning Domain	Teaching Strategy	Assessment Tools
Cell and homeostasis	Understand functional organization of human body	C2	SGD	MCQ SAQ VIVA
	Discuss homeostasis/control systems of the body	C2		
Cell cytoskeleton and locomotion and cell functions	Discuss the functions of cell	C2	SGD	MCQ SAQ VIVA
	Describe cell cytoskelation	C1		
Transport across cell membrane	Describe the structure of cell membrane	C1	SGD	MCQ SAQ VIVA
	Enlist various ion channels	C1		
	Discuss transport mechanism across the cell membrane with special emphasis on diffusion and osmosis	C2		
	Explain the types of active transport	C2		
Intracellular communication and cell junction, signal transduction	Describe the structure and function of various intracellular connections Discuss second messanger system	C1 C2	SGD	MCQ SAQ VIVA

Biochemistry Small Group Discussion (SGDs)

Topic	Learning Objectives	Learning Domain	Teaching Strategy	Assessment Tools
Cell and Cell Membrane	Explain Composition of Normal Cell & Cell Organelles	C2	SGD	MCQ SAQ VIVA
	Describe Composition of Cell Membrane Understand Fluid Mosaic Model	C2		
Physicochemical Aspects of Cell	Define osmosis and osmotic pressure. Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. Correlate oncotic pressure with clinical scenarios	C1 C2 C3	SGD	MCQ SAQ VIVA
	Define phenomenon of viscosity, surface tension. Explain Biochemical applications and methods to measure them.	C1 C2		
	Define Donnan equilibrium, adsorption and ion exchange resins. Describe their effects on tissue fluids and biochemical importance	C1 C2	SGD	MCQ SAQ VIVA

Anatomy Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning Resources
Clavicle	• Determine the side • Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). • Describe Intramembranous development. • Describe ossification in detail and Fracture of Clavicle • Able to read a relevant research article	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Clavicle (Chapter 3, Page143,153,154).
Scapula	• Determine the side • Demonstrate anatomical position, general features, attachments and articulations (medial and lateral). • Describe scapular anastomosis and its clinical significance • Able to read a relevant research article	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Scapula (Chapter 3, Page143-145,154,171,172).
Anterior axioappendicular muscles	• Describe Superficial fascia with cutaneous nerve and vessels of anterior axioappendicular region. • Understand the bio-physiological aspects of anterior axioappendicular region. • Able to read a relevant research article and use digital library	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Anterior axioappendicular muscles (Chapter 3, Page 168,169).
Posterior axioappendicular muscles	• Tabulate Muscles of the pectoral region (origin, insertion, nerve supply, action and applied). • Identify and describe the pectoral and clavipectoral fascia. • Able to read a relevant research article and use digital library	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Posterior axioappendicular muscles (Chapter 3, Page 170,171).
Axilla	• Define axilla • Describe its boundaries, • Enumerate the Contents of axilla, (axillary artery with its branches, axillary vein and tributaries, axillary lymphatics, lymph nodes and brachial plexus).	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Axilla (Chapter 3, Page 183-190,197,198).
Brachial plexus	• Describe the formation of brachial plexus its roots and trunks. • Describe the origin and root values of different nerves arising • Able to read a research article on brachial plexus • Able to use digital library	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Brachial plexus (Chapter 3, Page 191-196).
Brachial plexus injuries	• Describe the different neurological deficits arising as a result of damaged to roots, trunks and branches of brachial plexus at different levels. • Able to read a research article on brachial plexus	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Brachial plexus injuries (Chapter 3, Page 199-200).
Breast	• Describe the extent of breast • Describe the relations of breast • Describe structure of gland. • Discuss related clinical	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. Breast (Chapter 4, Page 315-318,323-326).

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning Resources
Concept of body fluids & internal environment.	• Introduction • Concept of extracellular and intracellular fluid • Homeostasis • Examples of control system	❖ Ganong's Review of Medical Physiology.25TH Edition, General principles and Energy productionin Medical Physiology (chapter 01, Page 03) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Introduction to physiology, controlsystems and homeostasis, chapter no. 1, page no. 40.49 ❖ Physiology by Linda S. Costanzo 6th Edition. Cellular physiology, chapter 01. Page 1 ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Introduction to Physiology.(Section 01, Chapter1, page 03).
Cell membrane & classification ofcell organelles	• Structure of cell membrane • Cell cytoskeleton • Cytoplasm and various organelles • Golgi Apparatus and its function • Lysosomes and peroxisomes • Secretory vesicles	❖ Ganong's Review of Medical Physiology.25TH Editions, Overview of Cellular Physiology inMedical Physiology (chapter 02, Page33) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Compartmentation, chapter 3, page95 ❖ Physiological Basis of Medical Practice by Best & Taylor's.13thEdition. The cell (chapter 01,section 1 Page 03, 18) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Introduction to Physiology.(Section 1, chapter 03, page 31)
Intracellular communication and cell junction	• Receptors and its types • Cellular signaling and various mechanisms • Signal transduction • Hormone receptors and their activation • Second messenger mechanisms	❖ Ganong's Review of Medical Physiology.25TH Edition., Overview of Cellular Physiology inMedical Physiology (chapter 02, Page 33-44) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Compartmentation, chapter 3, page109 ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th EditionThe cell (chapter 01, Page14) ❖ Textbook of Medical Physiology by Guyton & Hall.14thEdition. Introduction to Endocrinology.(Section 14, Page 920)

Receptors and signal transduction	• Receptors and its types • Cellular signaling and various mechanisms • Signal transduction • Hormone receptors and their activation • Second messenger mechanisms	❖ Ganong's Review of Medical Physiology.25TH Editions, Overview of Cellular Physiology inMedical Physiology (Chapter 02, Page 41) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Communication, chapter 6, page204 ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 7, principles ofhormone action and endocrine control (Chapter 50, Page817) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Introduction to Physiology.(Section 1, Chapter 02, page 13)
Homeostasis Control System- I (Negative Feedback System, Conceptof Error and Gain)	• Control systems of body • Negative and positive feedback mechanism and their examples • Apoptosis and necrosis	❖ Ganong's Review of Medical Physiology.25TH Edition, Overview of Cellular Physiology inMedical Physiology (Chapter 02, Page 62) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Introduction to physiology, chapterno. 1, page no. 45 ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Introduction to Physiology.(Section 1, Chapter 1, page 04,07) (Chapter 03, Page 45)
Genetics, Transcriptionand Translation	• Building blocks of DNA • Genetic code • Process of transcription and translation • Types of RNA • Cell division	❖ Ganong's Review of Medical Physiology.25TH Edition, General principles and Energy productionin MedicalPhysiology (Chapter 01, Page 63) ❖ Textbook of Medical Physiology by Guyton & Hall.14thEdition. ❖ (Section 01, Chapter03, Page31)
Structure of Nucleus, Ribosomes andCell Division	• Structure of Nucleus • Ribosomes • Mitosis & Overview of cancer	❖ Ganong's Review of Medical Physiology.25TH Edition, Overview of Cellular Physiology inMedical Physiology (Chapter 02, Page42) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Compartmentation, chapter 3, page100 ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. the cell (Chapter 01,Page7,) ❖ Textbook of Medical Physiology by Guyton & Hall.14thEdition. (Section 01, Chapter02, Page 19)

Transport across cell membrane andits various types (osmosis, diffusion, primary andsecondary active transport	• Types of transport across cell membrane • Diffusion and osmosis • Concept of gating of channels • Primary active transport • Secondary active transport	❖ Ganong's Review of Medical Physiology.25TH Edition, Overview of Cellular Physiology inMedical Physiology (Chapter 02, Page 45) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Membrane dynamics chapter 5,page 160 ❖ Physiology by Linda S. Costanzo 6th Edition. Cellular physiology, chapter 1, page 5 ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Properties and functionsof cell membrane, chapter 2, page 18 ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Membrane Physiology. (Section02, Chapter04, Page51)

Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Cell and cell organelles	• Explain composition of normal cell • Describe methods to separate different organelles of cell • Describe structure, functions and marker enzymes of ER & Golgi apparatus • Describe structure, functions and marker enzymes of lysosome, peroxisome & ribosome • Describe structure, functions and marker enzymes of mitochondria and Nucleus • Illustrate the clinical conditions and congenital defects of cell organelles	❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (chapter 1, page 3)
Cell membrane	• Explain composition of cell membrane • Understand fluid mosaic model • Describe functions performed by each component	❖ Harper's illustrated biochemistry 32nd edition (chapter 40 page - 460)
Transport across cell membrane	• Explain transport of various substances by active and passive transport, diffusion, phagocytosis, endocytosis and exocytosis • Correlate the clinical disorders with defective transport across cell membrane	○ ❖ Harper's illustrated biochemistry 32nd edition (Chapter 40 page 467)

Osmosis, osmotic pressure and oncotic pressure	• Define osmosis and osmotic pressure. • Discuss biochemical application of osmotic and oncotic pressure and methods to measure them. • Correlate oncotic pressure with clinical scenarios	❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 46)
Phenomenon of viscosity, surface tension.	• Define phenomenon of viscosity, surface tension. • Explain Biochemical applications and methods to measure them.	❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 52, 55)
Donnan equilibrium, adsorption and ion exchange resins	• Define Donnan equilibrium, adsorption and ion exchange resins. • Describe their effects on tissue fluids and biochemical importance	○ ❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 50)
Marker enzymes	• Interpret the role of measuring activity of different enzymes in the diagnosis and prognosis of different diseases	❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 6 page 168)
Enzyme as medicines	• Interpret the role of Enzyme as medicine and their effects on body.	❖ Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 06 page 169) ❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 05 page 69)
Nucleic acids.	• Explain biochemical aspects of Nucleic acids • State analogs of Nucleic acids	❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 30 page 459)
DNA	• Explain structure and biological importance of DNA, types of DNA • Differentiate between DNA &RNA	❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 30 page 460)
RNA	• Explain structure, types and functions of RNA	❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 31 page 482)
Transcription	• Describe mechanism of Transcription of prokaryotes & Eukaryotes	❖ Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 31 page 484)
Cancer	• Explain biochemical basis of cancer	❖ Harper's illustrated biochemistry 32nd edition (Chapter 56 page 681)

Histology Practicals Skill Laboratory (SKL)

Practical	At The End Of The Practical Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tool
Introduction to Microscope	• Identify different types of microscopes.	C1	Skill lab Demo	OSPE
	• Describe functions of different parts of microscope.	C1		
	• Identify different types of lenses.	C1		
	• Focus slides.	P		
Simple epithelium	• Classify epithelium.	C2	Skill lab Demo	OSPE
	• Illustrate different types of simple epithelium	P		
	• Identify types of simple epithelium.	P		
	• Write two points of identification	C1		
Stratified epithelium /Transional Epithelium	• Classify stratified epithelium.	C1	Skill lab Demonstration	OSPE
	• Illustrate different types of stratified epithelium	C1		
	• Discuss functions of stratified epithelium	C2		
	• Enlist sites of specific type of epithelium	C2		
	• Identify type of stratified epithelium under microscope	C1		
	• Write two points of identification	P		
Mammary gland	• Illustrate the different stages of activity of mammary gland	C2	Skill lab Demonstration	OSPE
	• Identify the slides of different stages of mammary gland	P		

Physiology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to Microscope	• Identification of different parts especially focusing lenses and their uses	C1	Skill Lab	OSPE
	• Focusing technique of different blood slides e.g Neubauer's chamber TLC & DLC slides	P		
Introduction to Wintrobe & Westergen tube	• Identify the wintrobe and westergen tubes	C1	Skill Lab	OSPE
	• Should know the differences between two tubes and uses in different methods	P		
Apparatus identification	• Complete study of Neubauer's slide, calculation of volumes of corner squares and central squares	P	Skill Lab	OSPE

(Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes& White Blood Cell (WBC) pipette	• Important differentiating points between WBC & RBC's pipettes	C1		
	• How to dilute the two pipettes	P		
	• Should know the composition of diluting fluids	C1		
Apparatus identification (Introduction to centrifuge machine)	• Be aware with the electrical connections of centrifuge machine and to control different speeds	P,A	Skill Lab	OSPE

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At the end of practical students should be able to	Learning domain	Teaching strategy	Assessment Tool
Introduction	• Describe laboratory techniques	C1	Skill Lab	OSPE
	• State precautions while working in the laboratory	C1		
Introduction to glassware	• Describe Pipetting and familiarity with glassware used in the laboratory	C1	Skill Lab	OSPE
Physic chemical principals; Adsorption, Surface Tension & Emulsion	• Illustrate process of adsorption and adsorbents	P	Skill Lab	OSPE
	• Demonstrate mechanism of surface tension and surfactants	P		
	• Demonstrate mechanism of emulsion	P		
Physic chemical principals; tonicity	• Demonstrate effects of solutions of different tonicity on red cells (isotonic, hypotonic and hypertonic)	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
    - **Biomedical Ethics & Professionlism**
    - **Family Medicine**
    - **Artificial Intelligence (Innovation)**
    - **Integrated Undergraduate Research Curriculum (IUGRC)**

Basic and Clinical Sciences (Vertical Integration)

Case Based Learning (CBL)

Subject	Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain
Anatomy	• Fracture of clavicle	Apply basic knowledge of subject to study clinical case.	C3
	• Winging of scapula due to long thoracic nerve injury	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Down's syndrome	Apply basic knowledge of subject to study clinical case.	C3
	• Smoker's cough	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Enzymes	Apply basic knowledge of subject to study clinical case.	C3
	• Genetics/PCR	Apply basic knowledge of subject to study clinical case.	C3

Large Group Interactive Sessions (LGIS)

Pathology

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tools
Introduction to Pathology	• Define the following terms: • Etiology • Pathogenesis • Morphology	C1	LGIS SGD	MCQ
Cellular Responses to Injury	• Discuss cellular responses to injury for: • Reversible injury • Adaptation • Irreversible injury • Cell death	C2	LGIS SGD	MCQ
	• Describe, the morphologic changes in cell injury culminating in necrosis and apoptosis	C2		
Intracellular Accumulations	• Describe types of intracellular accumulations with clinical examples: • Lipids/ fat	C2	LGIS SGD	MCQ

	• Protein • Glycogen • Pigments			
	• Explain mechanism of intracellular accumulations.	C2		
	• Enlist causes of fatty change	C1		
	• Describe the pathogenesis of fatty liver	C1		
Pigments	• Classify pigments	C2	LGIS SGD	MCQ
	• Explain the mechanism of pigment production and deposition in various clinical settings	C2		
	• Describe the morphological features (gross/ microscopic) with deposition of following pigments: Lipofuscin, Melani, Hemosiderin, Bilirubin, Anthracosis	C1		
Free Radicals/ Reactive Oxygen Species (Ros). Oxidative Stress	1. Define ROS/free radicals	C1	LGIS SGD	MCQ
	2. Enlist oxygen derived free radicals	C1		
	3. Describe mechanism of generation of free radicals	C2		
	4. Describe mechanism of removal of free radicals(antioxidants)	C2		
	5. Describe the pathologic effects of free radicals	C2		
Irreversible Injury. Necrosis	• Define necrosis	C1	LGIS SGD	MCQ
	• Enlist patterns/types with clinical examples	C1		
	• Describe morphological changes (gross and microscopic) in necrosis	C2		
Apoptosis (Irreversible Injury)	• Define apoptosis	C1	LGIS SGD	MCQ
	• Enlist clinical examples of apoptosis in • physiologic conditions	C1		
	• Enlist clinical examples of apoptosis in pathologic conditions	C1		
	• Describe mechanism of apoptosis	C2		
	• Tabulate differences between necrosis and apoptosis	C1		
Genetic Disorders	• Classify human genetic disorders	C1	LGIS SGD PBL	MCQ
	• Define mutation	C1		
	Define the following inheritance pattern: • Autosomal dominant • Autosomal recessive • X-linked	C1		
	• Describe diseases associated with consanguineous marriages	C2		

Pharmacology

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to Pharmacology	• Define pharmacology	C1	LGIS	MCQ
	• Discuss main branches of Pharmacology	C2		
	• Define drug according to WHO	C1		
	• Describe drug nomenclature	C1		
	• Cite important drug references	C1		
	• Describe the sources of drug	C2		
Routes of drug administration	• Enlist different routes of drug administration	C1	LGIS	MCQ
	• Discuss the merits and demerits of each route of drug administration	C2		
	• Identify the factors the influence the choice of the route of drug administration	C2		
Absorption of drugs	• Define drug absorption	C1	LGIS	MCQ
	• Identify different sites of drug absorption	C1		
	• Recall transport processes utilized by the drug for absorption across different sites	C1		
	•			
Factors affecting absorption of drugs	• Enlist drug and body related factors affecting drug absorption	C1	LGIS	MCQ
	• Briefly discuss different factors affecting drug absorption	C2		
Distribution of drugs	• Define distribution of drug	C1	LGIS	MCQ
	• Identify different body compartments	C1		
	• Explain distribution of drug through various body compartments	C2		
	• Enlist factors affecting distribution of drugs	C1		

Community Medicine

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Health for All	• Describe Man and medicine towards health for all	C1	LGIS	MCQS
	• Explain different eras of medicine	C1		
	• Describe different systems of medicine	C1		
Genetics	• Discuss Population Genetics	C1	LGIS PBL	MCQS

Medicine

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Medicine Evidence based medicine	• Define evidence based Medicine	C1	LGIS	MCQs
	• Discuss its applications.	C2		
	• Discuss components of EBM.	C2		
Bedside teaching	• Explain how to take history of the patient and which steps to follow	C2	LGIS	MCQs
General physical examination	• Explain How to perform GPE	C2	LGIS	MCQs
	• Discuss the importance of various signs	C2		
	• Discuss its correlation with systemic examination	C2		

Surgery

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
History taking & its importance	• Enlist the components of a detail history	C1	LGIS	MCQs
	• Describe Importance of each component	C2		
Breast surgery	• Describe the extension of breast	C1	LGIS	MCQs
	• Discuss different condition requiring breast surgery	C1		
	• Enlist steps involved in breast surgery	C1		
	• Describe outcomes of breast surgery	C1		

Obstetrics & Gynaecology

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to Fertilization, Implantation, embryogenesis, congenital abnormalities	• Understand the process of conception and implantation.	C2	LGIS	MCQs
	• Know the importance of embryogenesis	C2		
	• Identify major structural abnormalities	C1		
	• Understand the factors involved in fetal structural abnormalities	C2	LGIS	MCQs

Peadiatrics

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Medical Genetics & Dysmorphology	Describe the chromosomal abnormality and clinical features of trisomy 21	C2	LGIS	MCQs

Medical Education

Topic	Learning Objectives At the end of the lecture the student should be able to	Teaching Strategy	Assessment Tool
Orientation of Integrated Modular system	• Understand the concept of integration • Understand the orientation of integrated modular curriculum of RMU • Discuss the concept of internal assessment • To comprehend the rules of eligibility of professional examination	LGIS	MCQs
Leadership, mission & vision	• Define clinical leadership • Differentiate between management and leadership • Types of leadership style • Discuss the mission and vision RMU • Define mission vision and strategies	LGIS	MCQs

Professionalism	• Define medical professionalism • Describe attributes of healer and professional • Discuss the social contract of medical profession • List values, skills and behavior for professionalism	LGIS	MCQs
Lecture on feedback	• Receive and provide effective feedback • Describe types of feedback • Discuss principles of feedback • Discuss essential elements of feedback	LGIS	MCQs
Islam and Medical Science	• Discuss role of Islam and importance of Islam in Medical Science	LGIS	MCQs

Behavioral Sciences

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction To Behavioral Sciences	• To describe Holistic and Traditional Allopathic medicine.	C1	LGIS	MCQs
Management of stress	• Define the types of stress, its causes and management of stress	C1		

Biomedical Ethics & Professionlism

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to History of Medical Ethics	• To appraise the historical perspective of Hippocratic oath • Understanding the beginnings of contemprory bioethics to address ethical dilemmas	C2 C2	LGIS	MCQs

Family Medicine

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to Family Medicine & its application in health care system	• Describe presenting complains of patients with body aches • Disscus complications of body aches • Descirbe intial treatment of patients with body aches • Know when to refer patient to consultant/ Hospital	C3	LGIS-1	MCQs

Artificial Intelligence (Innovation)

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to Artificial Intelligence	• Discuss fractures of upper limb with their clinical significance. • Discuss role of artificial intelligence in interpretation of radiographs	C2	LGIS	MCQS

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
	Theoretical Lecture Based Teachings			
Introduction to Community Medicine	Define Community Medicine, public health, preventive medicine	C1		
	Differentiate Community medicine and preventive medicine	C2		
	Elaborate evolution of preventive medicine/public health	C2		
	Discuss role of public health in prevention of diseases	C2		
	Discuss importance of public health	C2		
Introduction to Health Research process and researcher (Research-I)	• Define Health Research & Concept of Health research methods.	C1	LGIS-1	MCQs
	• Understand background and value of research in health & human development	C2		
	• Elaborate Fundamental types and fields of health research covering;	C2		
	- Basic & Applied Research - Quantitative & Qualitative Research - Collaborative & Multidisciplinary research - Health Research triangle	C2		
	• Conceptualize the drivers of research Including;	C2		
	- Curiosity - Health needs - Opportunity Profit • Describe meanings of HR & HRM			
	• Appreciate role of HR in healthcare practices and human development	C2		
	• Differentiate among various types and fields of HR	C2		
	• Explain different drivers of HR	C2		
Characteristics of research and health research methods (Research-II)	• Explain meanings of various characteristics of health research process so as to	C2	LGIS-2	MCQs
	• Differentiate research activity from non-research activity.	C2		
	• Elaborate ingredients of researcher	C2		
	• Appreciate the importance of commands in certain pre-requisite subjects & skills before undertaking a research study.	C2		
	• Define Health Research	C1		
	• Discuss the criteria for selection of a research topic	C2		

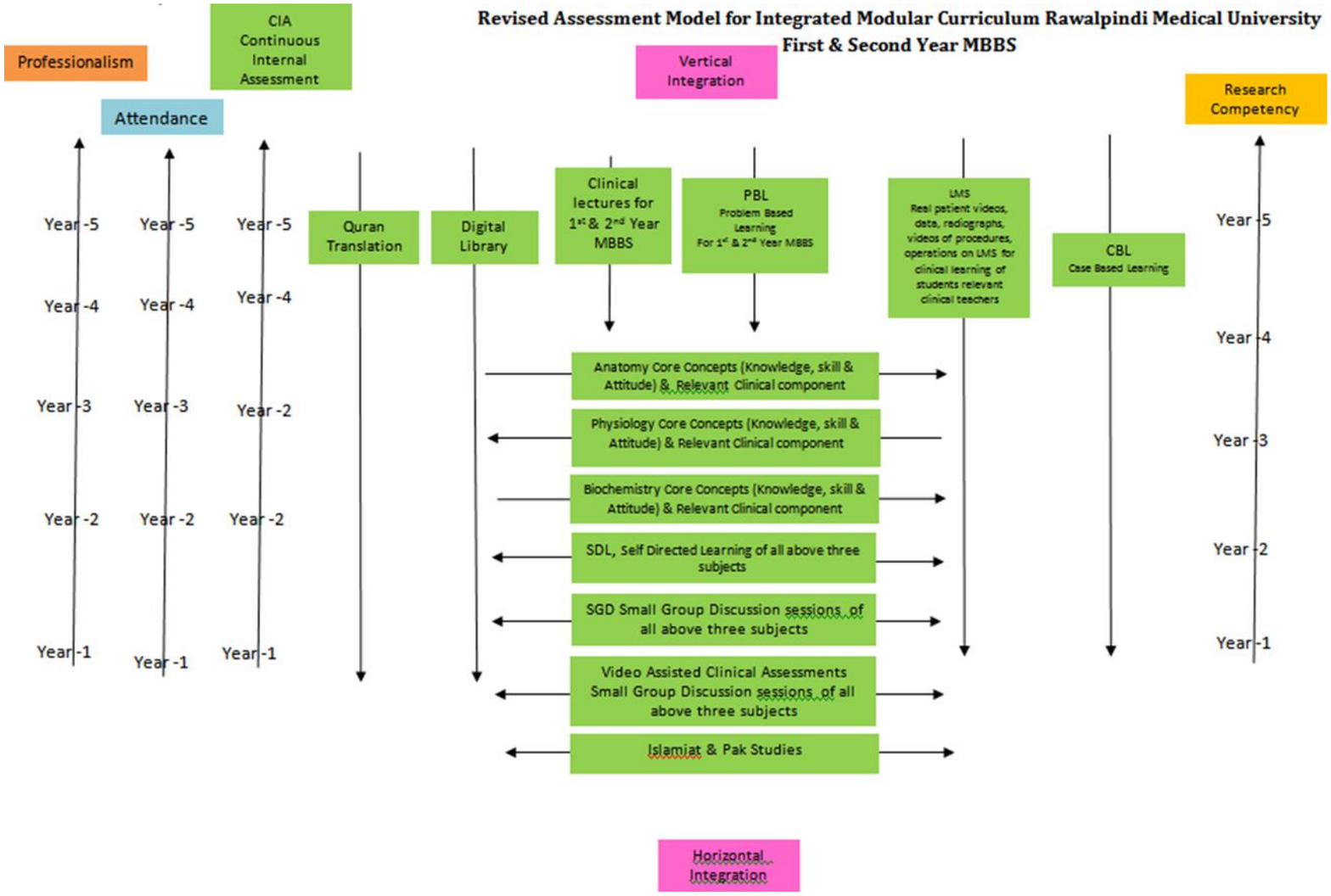
	• Elaborate the types of variable	C2		
	• Differentiate between qualitative and quantitative data	C2		
Basics of Ethics in Health Research (Research-III)	• Appreciate value of ethics in conduct of Health Research.	C2	LGIS-3	MCQs
	• Explain basic ethical principles of health research.	C2		
	• Interpret the application of data collection ethics	C2		
	• Explain ethics of research methods	C2		
Basics of Ethics in Health Research (Research-IV)	• Narrate responsibility for ethics in HR.	C2		
	• Explain Nuremburg code and importance of ethics in current research trends.	C2		
	• Elaborate General ethical principles including explanation of 04 basic principles of Beneficence, non-maleficence, respect and justice	C2		
Five steps of EBM	• Discuss Five steps of EBM	C2	LGIS-3	MCQs

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in Foundation Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

90% is eligibitlly criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular,modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given theshare according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based),modular and block levels.

Modular Assessement

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessement

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time In Foundation Module I

Block	Sr #	Module – 1 Foundation Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	**A. Gross Anatomy** 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S.Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III **B. Histology** 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. **C. Embryology** 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition.
Physiology	**A. Textbooks** 1. Textbook Of Medical Physiology by Guyton And Hall 14th edition. 2. Ganong ' S Review of Medical Physiology 26th edition. **B. Reference Books** 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition.
Biochemistry	**Textbooks** 1. Harper's Illustrated Biochemistry 32th edition. 2. Lehninger Principle of Biochemistry 8th edition. 3. Biochemistry by Devlin 7th edition.
Community Medicine	**Textbooks** 1. Community Medicine by Parikh 25th edition. 2. Community Medicine by M Illyas 8th edition. 3. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	**Textbooks** 1. Robbins & Cotran, Pathologic Basis of Disease, 10th edition. 2. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. 3. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	**Textbooks** 1. Lippincot Illustrated Pharmacology 9th edition.

SECTION - V

Time Table

Integrated Spiral Clinically Oriented Modular Curriculum for First Year MBBS

Foundation Module Time Table

First Year MBBS

Session 2022 - 2023

Batch- 50

Foundation Module Team

Module Name	:	Foundation Module
Duration of module	:	06 Weeks
Coordinator	:	Dr. Mohtasham Hina
Co-coordinator	:	Dr. Zeneara Saqib
Reviewed by	:	Module Committee

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Rai Muhammad Asghar
3.	Convener Curriculum	Prof. Dr. Naeem Akhter
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
5.	Additional Director DME	Prof. Dr. Ifra Saeed
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar
7.	Chairperson Biochemistry	Dr. Aneela Jamil
8.	Focal Person Anatomy First Year MBBS	Prof Dr. Ayesha Yousaf
9.	Focal Person Physiology	Dr. Sidra Hamid
10.	Focal Person Biochemistry	Dr. Aneela Jamil
11.	Focal Person Pharmacology	Dr. Zunera Hakim
12.	Focal Person Pathology	Dr. Asiya Niazi
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar
16.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
1.	Coordinator	Dr. Mohtasham Hina (Assosiate Professor of Anatomy)
2.	DME Focal Person	Dr. Sidra Hamid
3.	Co-coordinator	Dr. Zeneara Saqib (Demonstrator of Anatomy)
4.	Co-Coordinator	Dr. Uzma kiayani (Senior Demonstrator of Physiology)
5.	Co-coordinator	Dr. Shahrukh Khan (Senior Demonstrator of Biochemistry)

DME Implementation Team		
1.	Director DME	Prof. Dr. Rai Muhammad Asghar
2.	Implementation Incharge 1st & 2nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
3.	Deputy Director DME	Dr Shazia Zaib
4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
5.	Editor	Muhammad Arslan Aslam

Discipline wise Details of Modular Content

Block	Module	General Anatomy	Embryology	Histology	Gross Anatomy
1	Anatomy	Introduction To General Anatomy	General Embryology • Introduction To Human Development • Oogenesis • Spermatogenesis • Female Reproductive Cycles • Ovulation And Fertilization • Cleavage And Blastocyst Formation • Development Of Mammary Gland	General Histology • Types Of Epithelium • Specialization Of Apical Cell Surface • Intercellular Junctions and Adhesions • Glandular Epithelium • Histology Of Mammary Gland	• Anatomicomedical Terminologies I • Anatomicomedical Terminologies II (Anatomical Terms And Axis Of Movements) • Anatomicomedical Terminologies III (Cell and Tisues) • Anatomicomedical Terminologies IV (Skin & Body System) • Clavicle • Scapula • Humerus • Anterior Axioappendicular Muscles • Posterior Axioappendicular Muscles • Axilla • Brachial Plexus • Brachial Plexus Injuries • Breast • Sternoclavicular And Acromiclavicular Joints • Radiograph And Surface Anatomy of Axioappendicular Region
	• Biochemistry	• Cell And Cell Organelles, Cell Membrane and Transport Across Cell Membrane, Physicochemical Properties, Enzymes, Cancer, Nucleic Acid Chemistry, Genetics			
	• Physiology	• Functional Organization of The Human Body and Control of the “Internal Environment • The Cell and Its Functions • Genetic Control of Protein Synthesis, Cell Function, And Cell Reproduction • Transport Of Substances Through the Cell Membrane			
	• Vertical components	• The Holy Quran Translation Component			
	• Bioethics & Professionalism	• Introduction to history of medical ethics			
	• Artificial Intelligence	• Introduction to Artificial Intelligence			

	Innovation	
	• Family Medicine	• Introduction to Family Medicine & its application in health care system
	• Research (IUGRC)	• Research I Introduction of health research process • Research II characteristic of reserch process • Research III Basis of ethics in health research • Research IV Five Steps of EBM
	• Behavioral Sciences	• Introduction to Behavioral Sciences • Management of stress
	• Vertical Integration	Clinically content relevant to Foundation module • Opening ceremony (DME) • Introduction To Different Teaching Strategies, Role Of Team Leader Facilitator And Students SGD/LGIS/TBL/PAL/INTERNET & Literature Group activity (DME) • Leadership Professionalism (DME) • Orientation to integrated modular system (DME) • Lecture on feedback (DME) • Mission and vision (DME) • Introduction to Pharmacology • Routs of drug administration (Pharmacology) • Absorption of drugs (Pharmacology) • Factors affecting drug absorption (Pharmacology) • Distribution of drugs (Pharmacology) • Introduction to Pathology • Cellular response to injury (Pathology) • Intracellular accumulations (Pathology) • Pigments (Pathology) • Free radical and reactive oxygen species (Pathology) • Irreversible cell injury/apoptosis (Pathology) • Genetic disorders (Pathology) • Introduction to Community Medicine (Community Medicine) • Introduction to medicine (Medicine) • History of medicine (Medicine) • Medicine and allied subjects (Medicine) • Chromosomal abressions (Medicine) • History taking and general physical examination (Medicine)

Categorization of Modular Content of Anatomy:

Category A*	Category B**		Category C ***			
General Embryology	**General Histology**	**General Anatomy**	**Demonstrations / SGD**	**CBL**	**Practical's**	**Self-Directed Learning (SDL)**
Introduction to human development Oogenesis Spermatogenesis Female reproductive cycles Ovulation and fertilization Cleavage and blastocyst formation development of mammary gland	Types of epithelium Specialization of apical cell surface Intercellular junction and adhesions Glandular epithelium Histology of mammary gland	Introduction to General anatomy	Anatomicomedical terminologies I Anatomicomedical terminologies II (Anatomical terms and axis of movements) Anatomicomedical terminologies III (Cell and tissues) Anatomicomedical terminologies IV (Skin & Body system) Clavicle Scapula Humerus Anterior axioappendicular muscles Posterior axioappendicular muscles Axilla Brachial plexus & injuries Breast Sternoclavicular and acromioclavicular joints Radiograph and surface anatomy of axioappendicular region	Clavicle Brachial plexus injuries	Introduction to microscope, Slide preparation artifact Simple epithelium Stratified epithelium Mammary gland	Clavicle Scapula Anterioraxioappendicular muscles Posterior axioappendicular muscles Axilla brachial plexus Injuries of brachial plexus Breast

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

Sr. #	Designation Of Teaching Staff / Human Resource	Total Number Of Teaching Staff
1.	Professor of Anatomy department	01
2.	Associate professor of Anatomy department	01
3.	Assistant professor of Anatomy department (AP)	01
4.	Demonstrators of Anatomy department	03

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	2 * 13 = 26 hours
2.	Small Group Discussions (SGD)	2*12+ 1*2=26 hours
3.	Case Based Learning (CBL)	2* 2 = 4 hours
4.	Practical / Skill Lab	1.5 * 20 = 30 hours

Categorization of Modular Content of Physiology:

Category A*	**Category B****	**Category C*****				
LGIS	LGIS	PBL	CBL	Practical's	SGD	SDL
Introduction To Physiology Department (By Prof Dr. Samia Sarwar)	Concept of body fluids & internal environment (By Dr. Sidra Hamid)		Body Fluid Compartment, Cell Membrane and Cytoskeleton, Down's Syndrome	Introduction to Microscope Introduction to Wintrobe and Westergen tube Apparatus identification (Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes& White Blood Cell (WBC) pipette 4. Apparatus identification (Introduction to centrifuge machine)	Functional Organization of Human Body and Cell Physiology Cellular Control Mechanism, Cell Cycle and programmed cell death / apoptosis	Concept of body fluids & internal environment Genetics, Transcription and Translation Receptor and signal transduction Structure of Nucleus, Ribosomes and Cell Division Cellular Control Mechanism, Cell Cycle and programmed cell death / apoptosis
Homeostasis Control System-I (Negative Feedback System, Concept Of Error And Gain) (By Prof Dr. Samia Sarwar)	Intracellular communication and cell junction (By Dr. Sidra Hamid)					
Homeostasis Control System-II (positive feedback, and concept of feed forward, adaptive control and vicious cycle) (By Prof Dr. Samia Sarwar)	Receptor and signal transduction (By Dr. Sidra Hamid)					
Structure of Nucleus, Ribosomes and Cell Division (By Prof Dr. Samia Sarwar)	Active Transport- Ii (Secondary Active Transport) (Dr. Sheena Tariq)					
Cell membrane & classification of cell organelles (By Dr. Shmyla Hamid)						

Cell organelles & related cell function – I (By Dr. Shmyla Hamid)						
Cell organelles & related cell function – II (By Dr. Shmyla Hamid)						
Genetics, Transcription and Translation (By Dr. Shmyla Hamid)						
Active Transport- I (Primary Active Transport) (By Dr. Shmyla Hamid)						

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

Sr. #	Designation Of Teaching Staff / Human Resource	Total Number Of Teaching Staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	06

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LECTURES)	2* 18 =36 hours
2.	Small Group Discussions (SGD)/CBL	1hr 40 mint* 20= 33 hrs.& 20 mint + 1hr=34hrs & 20 minutes
3.	Problem Based Learning (PBL)	---
4.	Practical / Skill Lab	1hour 40 minutes* 20= 33 hours and 20 minutes
5.	Self-Directed Learning (SDL)	1hour * 8=8 hours

Categorization of Modular Content of Department Of Biochemistry:

Category A*	Category B**	Category C***			
LGIS	**LGIS**	**PBL**	**CBL**	**Practical's**	**SGD**
Nucleic Acids	Cell & cell organelles		Enzymes PCR	Introduction to glassware (pipetting)	Cell & Cell Membrane
Nucleic acid Chemistry	Cell membrane			Surface Tension Emulsion	Physicochemical Aspects of cell
Replication	Transport across cell membrane			Adsorption	
Transcription	Physicochemical aspects			Tonicity	
Translation	Water & PH				
Mutation	Cancer				
Recombinant DNA/ PCR	Enzymes				

Category A*: By Hod and Assistant Professor

Category B:** By All (Hod, Assistant Professors, Senior Demonstrators)

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation Of Teaching Staff / Human Resource	Total Number Of Teaching Staff
1	Assistant professor of biochemistry department (AP)	02
2	Demonstrators of biochemistry department	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	2 * 11 = 22 hours	11
2.	Small Group Discussions (SGD)	1.5 * 6 = 09 hours	09
3.	Problem Based Learning (PBL)	2 * 1 = 2 hours	02
4.	Practical / Skill Lab	1.5 * 04	06
5.	Self-Directed Learning (SDL)	1 * 8 = 8 hours	08

Time Table For Foundation Module (First Week)
(13-02-2023 To 18-02-2023)

Date/Day	8:30 AM – 11:00 AM	11:00 AM – 11:40AM	11:40 AM – 12:20 PM		12:20-PM – 02:00 PM
13-02-2023 Monday	Welcome address by VC Introduction to RMU, Allied hospitals, Introduction to Medical Education Department & Integrated Modular System, Introduction to basic & clinical sciences & IT Services	Introduction To Anatomy Department	Introduction To Physiology Department &	Introduction to Biochemistry Department	Anatomy Bio data forms
HR	Vice Chancellor RMU: Prof. Dr. Muhammad Umar Principle RMC: Prof Dr. Jahangir Sarwar Prof. Dr. Rai Muhammad Asghar: Director Medical Education * Director IT *	Prof. Dr. Ayesha Yousaf (HOD& DEAN)**	Prof. Dr. Samia Sarwar **	Dr. Aneela**	Dr. Zeneara (Even) / Dr. Urooj (Odd)

	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 AM – 11:00 AM		11:00 AM – 12:00 PM			12:20-2:00 PM
14-02-2023 Tuesday	BEHAVIORAL SCIENCES(LGIS)		PHARMACOLOGY	PATHOLOGY	**COMMUNITY MEDICINE (LGIS)**		**FAMILY MEDICINE**	**ARTIFICIAL INTELLIGENCE**	BREAK 12:00 – 12:20PM	Physiology & Biochemistry bio data forms
	Introduction to Behavioral Sciences		Introduction to Pharmacology and Pathology (Teachers will switch at 9:30 am)		Introduction to community medicine & IUGRC		Introducion to family medicnine	Introduction to AI		
HR	Prof. Dr. Muhammad Munir (Even)	Dr. Sadia Yasir (Odd)	Dr. Mudasira (Even)	Dr. Omaima (Odd)	Dr. Sana Bilal (Even)	Dr Khaula Noreen (Odd)	Dr. Sadia Khan	Dr. Fawad		Dr. Fareed (Even) / Dr. Fahad (Odd)

	8:00 AM- 10:00AM		10:00 AM – 11:00 AM		11:00 AM – 12:00 PM		12:20-2:00 PM	
15-02-2023 Wednesday	**DISSECTION / SGD**		**BEHAVIORAL SCIENCES(LGIS)**		**PHYSIOLOGY (LGIS)**		**BIOCHEMISTRY (LGIS)**	
	Anatomicomedical terminologies I (positions and planes)		Management of stress		Cell Physiology & homeostasis	Concept of body fluids & Internal environment	Cell Organelles (1)	Cell membrane
HR	3 Demonstrators 3 Batches of Students		Dr. Sadia (Even)	Dr. Zona (Odd)	Dr. Shmyla Hamid (Even)	Dr. Sidra Hamid (Odd)	Dr. Shahrukh Khan (Even)	Dr. Kashif Rauf (Odd)

	8:00 AM – 10:00 AM		10:00 – 11:00AM		11:00- 12:00PM		12:00 – 01:00PM		1:00-2:00 PM	
16-02-2023 Thursday	**DISSECTION/SGD**		**DME**		**PHYSIOLOGY (LGIS)**		**ANATOMY (LGIS)**		**COMMUNITY MEDICINE**	
	Anatomicomedical terminologies II (Anatomical terms and axis of movements)		Introduction To Different Teaching Strategies, Role of Team Leader Facilitator and Students SGD/LGIS/TBL/PAL/INTERNET & Literature Group activity		Concept of body fluids & Internal environment	Cell Physiology & homeostasis	Embryology / Introduction to Human Development	General Anatomy / Introduction to General Anatomy	Introduction to Health Research process and researcher (Research-I)	
HR	3 Demonstrators 3 Batches of Students		Dr. Sidra Hamid (Even)	Dr. Rizwana Shahid (Odd)	Dr. Sidra Hamid (Even)	Dr. Shmyla (Odd)	Prof. Dr. Ayesha Yousaf (Even)	Ass. Prof. Dr Arslan (Odd)	Dr. Rizwana (Even)	Dr. Uzma Hayat (Odd)

	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 AM – 11:00 AM		11:00 AM – 12:00 PM			
17-02-2023 Friday	**ISLAM & MEDICAL SCIENCE**	**QURAN TRANSLATION**	**ANATOMY LGIS**		**DME**		**PHARMACOLOGY**			
			General Anatomy	Embryology	Leadership & Professionalism	Orientation to Integrated modular system	Routes of drug administration			
	Islam And Medical Science	Introduction to Quran Translation	Introduction to General Anatomy	Introduction to Human development						
HR	Moulana Abdul Wahid (Even)	Mufti Naeem Sherazi (Odd)	Ass. Prof. Dr Arsalan (Even)	Prof. Dr. Ayesha Yousaf (Odd)	Dr. Arsalan (Even)	Dr Sidra Hamid (Odd)	Dr Omaima (Even)	Dr Zunera (Odd)		

	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM	10:00 AM – 11:00 AM		11:00 AM – 12:00 AM		12:00 AM – 1:00 PM		1:00 - 2:00 PM	
18-02-2023 Saturday	**DISSECTION/SGD**		**DME**		**MEDICINE**		**BIOCHEMISTRY (LGIS)**		**COMMUNITY MEDICINE**	
	Anatomicomedical terminologies III (Cell and tissues)		Orientation to Integrated modular system	Leadership &Professionalism	Introduction to medicine		Cell membrane	Cell Organelles-I	Characteristics of research and health research methods (Research-II)	
HR	3 Demonstrators 3 Batches of Students		Dr Sidra Hamid (Even)	Dr. Arslaan (Odd)	Dr. Sadaf Zaman (Even)	Dr. Sana Ahmed (Odd)	Dr. Kashif Rauf (Even)	Dr. Shahrukh Khan (Odd)	Dr. Rizwana (Even)	Dr. Uzma Hayat (Odd)

Details of Venue & Batches

Schedule For Practical / Small Group Discussion

Day	Histology Practical	iochemistry Practical	Physiology Practical	Physiology SGD	iochemistry SGD
Monday	C	B	E	A	D
Tuesday	D	C	A	B	E
Wednesday	E	D	B	C	A
Thursday	B	A	D	E	C
Saturday	A	E	C	D	B

Venue For First Year Batches for Anatomy Dissection / Small Group Discussion

Batches	Roll No	Anatomy Teacher	Venue
A	01-120	Dr. Zeneara Saqib	Lecture Hall No.03 Anatomy Lecture Hall
B	121-240	Dr Urooj Shah	Lecture Hall No.04 Anatomy Lecture Hall
C	241-onwards	Dr Ali Raza	Dissection Hall

Venue For First Year Batches For PBL & SGD Team-I

Batches	Roll No	Venue	
Batch-A1	(01-35)	Lecture Hall no.05 (Physiology)	Dr. Sheena Tariq
Batch-A2	(36-70)	Lecture Hall no.04 (1st Floor Anatomy)	Dr. Uzma Kiani
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)	Dr. Fahd Anwar
Batch-B2	(106-140)	Conference room (Basement)	Dr. Fareed Ullah
Batch-C1	(141-175)	Lecture Hall N0. 04 (Basement)	Dr. Maryam Abbas (PGT Physiology)
Batch-C2	(176-210)	Lecture Hall NO. 05 (Basement)	Dr. Nayab (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall NO. 03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Shahrukh (PBL) Dr. Muhammad Usman (SGD)
Batch-E1	(281-315)	Lecture Hall no.01	Dr. Ismail (PGT Physiology)
Batch-E2	(315 onwards)	Lecture Hall no.02	Dr. Uzma Zafar (PBL) Dr. Kamil Tahir (SGD)

Sr. No	Batch	Roll no	Names of Teachers	
			Biochemistry	Physiology
1.	Batch – A	01-70	Dr. Almas Ijaz	Dr. Sheena Tariq
2.	Batch –B	71-140	Dr. Rahat Afzal	Dr. Uzma Kiani
3.	Batch –C	141-210	Dr. Shahrukh Khan	Dr. Fahd Anwar
4.	Batch –D	211-280	Dr. Uzma Zafar	Dr. Maryam Abbas
5.	Batch -E	281-onwards	Dr. Faiza Zafar	Dr. Fareed

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 03
Even Roll Number	New Lecture Hall Complex Lecture Theater # 02

Time Table For Foundation Module (Second Week)
(20-02-2023 To 25-02-2023)

DATE/ DAY	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM	10:00 AM – 11:00 AM	11:00 AM – 12:00 AM		12:20 PM TO 02:00PM	Home Assignment
20-02-2023 **Monday**	**DISSECTION/ SGD**		**BIOETHICS**	**PHYSIOLOGY (LGIS)**		**Practical & Tutorial** Topics& Venue mentioned at the end	SDLPhysiology Homeostasis
	Anatomicomedical terminologies IV (Skin and body systems)		Introduction to History of Medical Ethics	Cell membrane & classification of cell organelles	Intracellular communication and cell junction		
			Dr Sidra Hamid (Odd) / Dr. Kashif (Even)	Dr. Shmyla Hamid (Even)	Dr. Sidra Hamid (Odd)		
21-02-2023 **Tuesday**	**SGD/CBL**		**PHYSIOLOGY SSGD**	**PHYSIOLOGY (LGIS)**		**Practical & Tutorial** Topics& Venue mentioned at the end	SDLphysiology Homeostatic control mechanism
	Clavicle		Concept Of Body Fluid and Internal Environment	Intracellular communication and cell junction	Cell membrane & classification of cell organelles		
			PHYSIOLOGY TEAM I	Dr. Sidra Hamid (Even)	Dr. Shmyla Hamid (Odd)		
22-02-2023 **Wednesday**	**Dissection / SGD**		**PATHOLOGY (LGIS)**	**PHARMACOLOGY LGIS**		**Practical & Tutorial** Topics& Venue mentioned at the end	SDL Biochemistry Cell organelles
	Scapula		Cellular response to Injury	Absorption of drugs			
			Dr. Abid (Even) / Dr Ayesha (Odd)	Dr. Zunera (Even)	Dr Omaima (Odd)		
23-02-2023 **Thursday**	**COMMUNITY -MEDICINE**	**BIOCHEMISTRY LGIS**	**PATHOLOGY (LGIS)**	**PHYSIOLOGY (LGIS)**		**Practical & Tutorial** Topics& Venue mentioned at the end	SDL Biochemistry Cell Membrane Transport Across Cell Membrane
	Basics of Ethics in Health Research (Research-III)	Cell Organelle-II / Transport across cell membrane	Intra Cellular accumulation	Cell organelles& cell function - I	Receptor and signal transduction		
	Dr Uzma Hayat (Even) / Dr Rizwana (Odd)	Dr. Shahrukh (Even) / Dr. Kahsif (Odd)	Dr. Abid (Even) / Dr Ayesha (Odd)	Dr. Shmyla (Even)	Dr. Sidra Hamid (Odd)		
24-02-2023 **Friday**	**BIOCHEMISTRY LGIS**	**ISLAM AND MEDICAL SCIENCE**	**PHYSIOLOGY (LGIS)**	**PHARMACOLOGY (LGIS)**		SDL Anatomy clavicle	
	Transport across cell membrane / Cell organelle-II	Introduction to Quran translation / Islam And Medical Science	Receptor and signal transduction / Cell organelles & related cell function - I	Factors affecting Absorption of drugs			
	Dr. Kashif Rauf (Even) / Dr. Shahrukh (Odd)	Mufti Naeem Sherazi (Even) / Moulana Abdul Wahid (Odd)	Dr. Sidra Hamid (Even) / Dr. Shmyla Hamid (Odd)	Dr. Zunera (Even)	Dr Omaima (Odd)		
25-02-2023 **Saturday**	**DISSECTION/ SGD**		**BIOCHEMISTRY (LGIS)**	**PHARMACOLOGY (LGIS)**		**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Anatomy Scapula
	Humerus		Physico chemical aspects-I / Physico chemical aspects-I	Distribution of drugs			
			Dr. Almas Ijaz (Even) / Dr. Nayab (Odd)	Dr. Omaima (Even)	Dr Zunera (Odd)		

BREAK 12:00 – 12:20PM / **BREAK**

Topics For Practical with Venue	Topics For Small Group Discussion& CBLs With Venue
• Introduction to Microscope and Preparation of Slide. Artifacts (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. Ali Raza) • Introduction to glass wares (Pipetting) (Biochemistry practical) venue- Biochemistry lab) • Introduction to Microscope. (Physiology-Practical (Physiology Laboratory)	• Physiology small group discussion-Functional organization of human body and cell physiology venue-Lecture Hall 5 • Biochemistry small group discussion – Cell& Cell membrane- Lecture Hall 3

Schedule For Practical / Small Group Discussion

Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD
Monday	C	B	E	A	D
Tuesday	D	C	A	B	E
Wednesday	E	D	B	C	A
Thursday	B	A	D	E	C
Saturday	A	E	C	D	B

Venue For First Year Batches for Anatomy Dissection / Small Group Discussion

Batches	Roll No	Anatomy Teacher	Venue
A	01-120	Dr. Zeneara Saqib	Lecture Hall No.03 Anatomy Lecture Hall
B	121-240	Dr Urooj Shah	Lecture Hall No.04 Anatomy Lecture Hall
C	241-onwards	Dr Ali Raza	Dissection Hall

Venue For First Year Batches For PBL & SGD Team-I

Batches	Roll No	Venue	
Batch-A1	(01-35)	Lecture Hall no.05 (Physiology)	Dr. Sheena Tariq
Batch-A2	(36-70)	Lecture Hall no.04 (1st Floor Anatomy)	Dr. Uzma Kiani
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)	Dr. Fahd Anwar
Batch-B2	(106-140)	Conference room (Basement)	Dr. Fareed ullah
Batch-C1	(141-175)	Lecture Hall N0. 04 (Basement)	Dr. Maryam Abbas (PGT Physiology)
Batch-C2	(176-210)	Lecture Hall NO. 05 (Basement)	Dr. Nayab (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall NO. 03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Shahrukh (PBL) Dr. Muhammad Usman (SGD)
Batch-E1	(281-315)	Lecture Hall no.01	Dr. Ismail (PGT Physiology)
Batch-E2	(315 onwards)	Lecture Hall no.02	Dr. Uzma Zafar (PBL) Dr. Kamil Tahir (SGD)

Sr.No	Batch	Roll no	Names of Teachers	
			Biochemistry	Physiology
1.	Batch – A	01-70	Dr. Almas Ijaz	Dr. Sheena Tariq
2.	Batch –B	71-140	Dr. Rahat Afzal	Dr. Uzma Kiani
3.	Batch –C	141-210	Dr. Shahrukh Khan	Dr. Fahd Anwar
4.	Batch –D	211-280	Dr. Uzma Zafar	Dr. Maryam Abbas
5.	Batch -E	281-onwards	Dr. Faiza Zafar	Dr. Fareed

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 03
Even Roll Number	New Lecture Hall Complex Lecture Theater # 02

Time Table For Foundation Module (Third Week)
(27-02-2023 To-04-03-2023)

DATE/DAY	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM	10:00 AM – 11:00 AM	11:00 AM – 12:00 PM	BREAK 12:00PM TO 12:20PM	12:20 PM – 02:00 PM	Home Assignment
27-02-2023 Monday	**DISSECTION / SGD**		**MEDICINE**	**BIOCHEMISTRY LGIS**		**Practical &CBL** Topics & Venue mentioned at the end	SDL Physiology Intracellular communication
	Anterior axioappendicular muscles		History of Medicine	Physico chemical aspects-I / Physico chemical aspects-I			
			Dr. Saleha Imran (Odd) / Dr. Ayesha Habib (Even)	Dr. Nayab (Even) / Dr. Almas (Odd)			
28-02-2023 Tuesday	**DISSECTION / SGD**		**(ANATOMY LGIS)**	**PHYSIOLOGY (LGIS)**		**Practical &CBL** Topics & Venue mentioned at the end	SDL Physiology Receptors &signal transduction
	Posterior axioappendicular muscles		Histology / Embryology	Cell organelles & cell function - II / Homeostasis Control System- I (Negative Feedback System, Concept of Error and Gain)			
			Types of epithelium / Gametogenesis (Oogensis)				
			Associate. Prof / Prof. Dr. Ayesha	Dr. Shmyla Hamid / Prof. Dr. Samia Sarwar /Dr. Uzma			
01-03-2023 Wednesday	**BIOCHEMISTRY (LGIS)**	**PATHOLOGY LGIS**	**ANATOMY LGIS**	**PHYSIOLOGY (LGIS)**		**Practical &CBL** Topics & Venue mentioned at the end	SDL Biochemistry Physicochemical aspects (Osmosis, Osmotic Pressure)
	Physico chemical aspects-II / Physico chemical aspects-II	Pigments	Embryology / Histology	Homeostasis Control System- I (Negative Feedback System, Concept of Error and Gain) / Cell organelles& cell function - II			
			Gametogenesis -(Oogenesis) / Types of Epithelium				
	Dr. Almas (Even) / Dr. Nayab (Odd)	Dr. Abid (Even) / Dr Ayesha (Odd)	Prof. Dr. Ayesha (Even) / Ass. Prof. Dr Mohtasham (Odd)	Prof. Dr. Samia Sarwar /Dr. Uzma (Even) / Dr. Shmyla Hamid (Odd)			
02-03-2023 Thursday	**PEADS**	**COMMUNITY MEDICINE**	**BIOCHEMISTRY**	**PHYSIOLOGY (LGIS)**		**Practical &CBL** Topics & Venue mentioned at the end	SDL Biochemistry Physicochemical aspects (Surface Tension, Viscosity)
	Medical genetic & dysmorphology	Basics of Ethics in Health Research (Research -IV)	Physico chemical aspects-II / Physico chemical aspects-II	Genetics, transcription & translation / Homeostasis Control System-II (positive feedback, and concept of feed forward, adaptive control and vicious cycle)			
	Dr. Safdar Ijaz (Even) / Dr. Maria Shamsheer (Odd)	Dr Uzma Hayat Even) / Dr Rizwana (Odd)	Dr. Almas (Odd) / Dr. Nayab (Even)	Dr. Shmyla Hamid (Even) / Prof. Dr. Samia Sarwar /Dr. Uzma (Odd)			
03-03-2023 Friday	**MEDICINE**	**DME**	**BIOCHEMISTRY**	**PHYSIOLOGY (LGIS)**		12:00pm – 12:30pm	
	Medicine And Allied Subjects	Lecture on Feedback / Lecture on Mission & Vision	pH & Water / Nucleic acid chemistry	Homeostasis Control System-II (positive feedback, and concept of feed forward, adaptive control and vicious cycle) / Genetics, transcription & translation		SDL Anatomy Anterior axioappendicular muscles	
	Dr. Umer Daraz (Even) / Dr. Iqra Ashraf (Odd)	Dr. Sidra Hamid (Even) / Dr. Arsalan Odd)	Dr. Shahrukh (Even) / Dr. Anoosh (Odd)	Prof. Dr. Samia Sarwar /Dr. Uzma (Even) / Dr. Shmyla Hamid (Odd)			
04-03-2023 Saturday	**Dissection**	**Anatomy LGIS**	**BIOCHEMISTRY (LGIS)**	**PHYSIOLOGY (LGIS)**		**Practical &CBL** Topics & Venue mentioned at the end	SDL Anatomy Postior axioappendicular muscles
	Dissection / Spotting	Embryology / Embryology	Nucleic acid chemistry / pH & Water	Cell membrane ion channels, transport across cell membrane / Structure of nucleus, ribosomes and cell division			
		Gametogenesis / Gametogenesis					
		Prof. Dr. Ayesha (Odd) / Associate. Prof Dr. Mohtashim	Dr. Shahrukh (Odd) / Dr. Anoosh (Even)	Dr. Shmyla Hamid (Even) / Dr. Uzma (Odd)			

Online LMS Assessment Will be Conducted in Evening (Date and time will be shared with separate notification)

Topics For Practical with Venue	Topics For Small Group Discussion& CBLs With Venue
• Simple Epithelium (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. Zeneara) • Physiochemical aspects of cell - surface tension and Emulsion (Biochemistry practical) venue- Biochemistry Lab) • Introduction to Wintrobe &Westergen tube (Physiology-Practical (Physiology Laboratory)	• Physiology CBL –Body fluid compartment, cell membrane & cytoskeletal-venue-Lecture Hall 5 (First Floor) • Biochemistry Small Group Discussion - Physico chemical aspects of cell membrane - Lecture Hall 3 (First Floor)

Schedule For Practical / Small Group Discussion

Day	**Histology Practical**	**Biochemistry Practical**	**Physiology Practical**	**Physiology SGD**	**Biochemistry SGD**
Monday	C	B	E	A	D
Tuesday	D	C	A	B	E
Wednesday	E	D	B	C	A
Thursday	B	A	D	E	C
Saturday	A	E	C	D	B

Venue For First Year Batches For Anatomy Dissection / Small Group Discussion

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-120	Dr. Zeneara Saqib	Lecture Hall No.03 Anatomy Lecture Hall
B	121-240	Dr Urooj Shah	Lecture Hall No.04 Anatomy Lecture Hall
C	241-onwards	Dr Ali Raza	Dissection Hall

Venue For First Year Batches For PBL & SGD Team-I

Batches	**Roll No**	**Venue**	
Batch-A1	(01-35)	Lecture Hall no.05 (Physiology)	Dr. Sheena Tariq
Batch-A2	(36-70)	Lecture Hall no.04 (1st Floor Anatomy)	Dr. Uzma Kiani
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)	Dr. Fahd Anwar
Batch-B2	(106-140)	Conference room (Basement)	Dr. Fareed Ullah
Batch-C1	(141-175)	Lecture Hall N0. 04 (Basement)	Dr. Maryam Abbas (PGT Physiology)
Batch-C2	(176-210)	Lecture Hall NO. 05 (Basement)	Dr. Nayab (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall NO. 03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Shahrukh (PBL) Dr. Muhammad Usman (SGD)
Batch-E1	(281-315)	Lecture Hall no.01	Dr. Ismail (PGT Physiology)
Batch-E2	(315 onwards)	Lecture Hall no.02	Dr. Uzma Zafar (PBL) Dr. Kamil Tahir (SGD)

Sr. No	**Batch**	**Roll no**	**Names of Teachers**	
			Biochemistry	**Physiology**
1.	Batch – A	01-70	Dr. Almas Ijaz	Dr. Sheena Tariq
2.	Batch –B	71-140	Dr. Rahat Afzal	Dr. Uzma Kiani
3.	Batch –C	141-210	Dr. Shahrukh Khan	Dr. Fahd Anwar
4.	Batch –D	211-280	Dr. Uzma Zafar	Dr. Maryam Abbas
5.	Batch -E	281-onwards	Dr. Faiza Zafar	Dr. Fareed

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 03
Even Roll Number	New Lecture Hall Complex Lecture Theater # 02

Time Table For Foundation Module (Fourth Week)
(06-03-2023 To 11-03-2023)

DATE / DAY	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 AM – 11:00 AM		11:00 AM – 12:00 PM			12:20 PM – 02:00 PM	Home Assignment
06-03-2023 Monday	**BIOCHEMISTRY (LGIS)**		**ANATOMY (LGIS)**		**PATHOLOGY SGD**		**PHYSIOLOGY(LGIS)**		BREAK 12:00 PM TO 12:20 PM	**Practical &CBL** Topics & Venue mentioned at the end	SDL Physiology Genetics, transcription & translation
	Cancer	PH & Water-II	Histology / Specialization of Apical cell surface	Embryology	Free Radicals/ Reactive Oxygen Species (ROS).		Structure of nucleus, ribosomes and cell division	Cell membrane ion channels, transport across cell membrane			
	Dr. Almas (Even)	Dr. Shahrukh (Odd)	Ass. Prof. Dr Mohtashim (Even)	Prof. Dr. Ayesha (Odd)	Dr. Abid (Even)	Dr Ayesha (Odd)	Dr. Uzma (Even)	Dr. Shmyla Hamid (Odd)			
07-03-2023 Tuesday	**BIOCHEMISTRY (LGIS)**		**ANATOMY(LGIS)**		**DME**		**BIOCHEMISTRY (LGIS)**			**Practical &CBL** Topics & Venue mentioned at the end	SDL Physiology Structure of nucleus ribosome's & cell division
	PH & Water-II	Cancer	Embryology / Female reproductive cycles	Histology / Specialization of Apical cell surface	Mission and vision lecture	Lecture on Feedback	Nucleic acid II	Intro and classification of enzymes			
	Dr. Shahrukh (Even)	Dr. Almas (Odd)	Prof. Dr. Ayesha (Even)	Ass. Prof. Dr Mohtashim (Odd)	Dr. Arsalan (Even)	Dr. Sidra Hamid (Odd)	Dr. Anoosh (Even)	Dr. Uzma Zafar (Odd)			
08-03-2023 Wednesday	**DISSECTION / SGD**				**PATHOLOGY (LGIS)**		**PHYSIOLOGY (LGIS)**			**Practical &CBL** Topics & Venue mentioned at the end	SDL Biochemistry Nucleic Acid Chemistry Online SDL Evaluation will be conducted from 12 to 12,30 noon
	Axilla				Irreversible injury / Necrosis		Transport across cell membrane, Osmosis	Cellular control mechanism, cell cycle programmed cell death/ apoptosis			
					Dr. Abid (Even)	Dr Ayesha (Odd)	Dr. Shmyla Hamid (Even)	Dr. Uzma (Odd)			
09-03-2023 Thursday	**ANATOMY LGIS**		**BIOCHEMISTRY (LGIS)**		**SURGERY**		**PHYSIOLOGY (LGIS)**			**Practical &CBL** Topics & Venue mentioned at the end	SDL Biochemistry Cancer
	Histology / Intercellular junctions and adhesions	Embryology / Ovulation and fertilization	Intro. & classification of Enzymes	Nucleic acid-II	Breast surgery		Cellular control mechanism, cell cycle programmed cell death/ apoptosis	Transport across cell membrane, Osmosis			
	Ass. Prof. Dr. Mohtashim (Even)	Prof. Dr. Ayesha (Odd)	Dr. Uzma Zafar (Even)	Dr. Anoosh (Odd)	Dr. Ali Kamran (Even)	Dr. Samra Riaz (Odd)	Dr. Uzma (Even)	Dr. Shmyla Hamid (Odd)			
10-03-2023 Friday	**PATHOLOGY LGIS.**		**ANATOMY (LGIS)**		**BIOCHEMISTRY (LGIS)**		**PHYSIOLOGY (LGIS)**			SDL Anatomy Axilla	
	Irreversible Injury Apoptosis / Dr. Abid (Even)	Dr Ayesha (Odd)	Embryology / Ovulation and fertilization / Prof. Dr Ayesha (Even)	Histology / Intra cellular junctions & adhesions / Ass. Prof. Dr Muhtashim (Odd)	Properties/factors of Enzymes	Replication	Active Transport I	Active Transport II			
					Dr. Uzma Zafar (Even)	Dr. Anoosh (Odd)	Dr. Shmyla Hamid (Even)	Dr. Sheena (Odd)			
11-03-2023 Saturday	**DISSECTION / SGD**				**BIOCHEMISTRY (LGIS)**		**PHYSIOLOGY (LGIS)**		BREAK	**Practical &CBL** Topics & Venue mentioned at the end	SDL Anatomy Brachial plexus
	Brachial plexus				Replication	Properties/factors of Enzymes	Active Transport II	Active Transport I			
					Dr. Anoosh (Even)	Dr. Uzma Zafar (Odd)	Dr. Sheena (Even)	Dr. Shmyla Hamid (Odd)			

Online SDL Evaluation Will be Conducted on 8th March,2023

Topics For Practical with Venue	Topics For Small Group Discussion& CBLs With Venue
• Stratified epithelium & transitional epithelium (Anatomy/Histology-practical) venue-Histology Laboratory (Dr. Urooj) • Physiochemical aspects of cell- Adsorption (Biochemistry practical) venue-Biochemistry laboratory) • Apparatus identification (Introduction to Neubauer's chamber, Red Blood Cell (RBC) pipettes& White Blood Cell (WBC) pipette (Physiology-Practical (Physiology Laboratory)	• Physiology CBL Down's syndrome – (venue-Lecture Hall 5) • Biochemistry CBL – Enzymes-Lecture Hall 3

Schedule For Practical / Small Group Discussion

Day	**Histology Practical**	**Biochemistry Practical**	**Physiology Practical**	**Physiology SGD**	**Biochemistry SGD**
Monday	C	B	E	A	D
Tuesday	D	C	A	B	E
Wednesday	E	D	B	C	A
Thursday	B	A	D	E	C
Saturday	A	E	C	D	B

Venue For First Year Batches for Anatomy Dissection / Small Group Discussion

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-120	Dr. Zeneara Saqib	Lecture Hall No.03 Anatomy Lecture Hall
B	121-240	Dr Urooj Shah	Lecture Hall No.04 Anatomy Lecture Hall
C	241-onwards	Dr Ali Raza	Dissection Hall

Venue For First Year Batches For PBL & SGD Team-I

Batches	**Roll No**	**Venue**	
Batch-A1	(01-35)	Lecture Hall no.05 (Physiology)	Dr. Sheena Tariq
Batch-A2	(36-70)	Lecture Hall no.04 (1st Floor Anatomy)	Dr. Uzma Kiani
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)	Dr. Fahd Anwar
Batch-B2	(106-140)	Conference room (Basement)	Dr. Fareed ullah
Batch-C1	(141-175)	Lecture Hall N0. 04 (Basement)	Dr. Maryam Abbas (PGT Physiology)
Batch-C2	(176-210)	Lecture Hall NO. 05 (Basement)	Dr. Nayab (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall NO. 03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Shahrukh (PBL) Dr. Muhammad Usman (SGD)
Batch-E1	(281-315)	Lecture Hall no.01	Dr. Ismail (PGT Physiology)
Batch-E2	(315 onwards)	Lecture Hall no.02	Dr. Uzma Zafar (PBL) Dr. Kamil Tahir (SGD)

Sr. No	**Batch**	**Roll no**	**Names of Teachers**	
			Biochemistry	**Physiology**
1.	Batch – A	01-70	Dr. Almas Ijaz	Dr. Sheena Tariq
2.	Batch –B	71-140	Dr. Rahat Afzal	Dr. Uzma Kiani
3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Fahd Anwar
4.	Batch –D	211-280	Dr. Uzma Zafar	Dr. Maryam Abbas
5.	Batch -E	281-onwards	Dr. Faiza Zafar	Dr. Fareed

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 03
Even Roll Number	New Lecture Hall Complex Lecture Theater # 02

Time Table For Foundation Module (Fifth Week)
(13-03-2023 To 18-03-2023)

DATE / DAY	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM	10:00 AM – 11:00 AM		11:00 AM – 12:00 PM			12:20 PM – 02:00 PM	Home Assignment
13-03-2023 Monday	**DISSECTION / CBL**		**MEDICINE(LGIS)**		**ANATOMY (LGIS)**			**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Physiology Cell membrane
	Brachial plexus injuries		Chromosomal Abrassions		Embryology	Histology			
					Cleavage and formation of blastocyst	Glands			
			Dr. Madiha Nazr (Odd)	Dr. Mudassir (Even)	Prof. Dr. Ayesha (Even)	Ass. Prof. Dr. Mohtashim (Odd)			
14-03-2023 Tuesday	**DISSECTION**		**BIOCHEMISTRY (LGIS)**		**GYNAE & OBS**		BREAK 12:00 PM TO 12:20 PM	**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Physiology Cell organelles
	Breast		Transcription	MM Equation	Introduction to fertilization . implantation. Embryogenesis and congenital anomalies				
			Dr. Aneela (Even)	Dr. Uzma Zafar (Odd)	Dr. Nighat Naheed (Even)	Dr. Sobia Nawaz (Odd)			
15-03-2023 Wednesday	**DISSECTION / SGD**	**PATHOLOGY(LGIS)**	**BIOCHEMISTRY (LGIS)**		**BIOCHEMISTRY (LGIS)**			**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Biochemistry Diagnostic Role of Enzymes
	Dissection/spotting	Genetic disorder	MM Equation	Transcription	Recombinant DNA/ PCR	Mutation			
		Dr. Abid (Even) Dr Ayesha (Odd	Dr. Uzma Zafar (Even)	Dr. Aneela (Odd)	Dr. Kashif Rauf (Even)	Dr. Aneela Jamil (Odd)			
16-03-2023 Thursday	**DISSECTION / SGD**		**BIOCHEMISTRY (LGIS)**		**ANATOMY (LGIS)**			**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Biochemistry Transcription Online Clinical Evaluation will be conducted from 12 to 12,15 noon
	Sternoclavicular and acromioclavicular joints		Translation	Regulation of Enzyme Activity	Histology	Embryology			
					Glands	Cleavage and formation of blastocyst			
			Dr. Aneela (Even)	Dr. Uzma Zafar (Odd)	Ass. Prof. Dr Muhtasham (Even)	Prof. Dr. Ayesha Yousaf (Odd)			
17-03-2023 Friday	**DISSECTION / SGD**		**BIOCHEMISTRY (LGIS)**		**MEDICINE(LGIS)**			SDL Anatomy Brachial plexus injuries'	
	Radiograph/Surface anatomy of axioapendicular region		Regulation of Enzyme Activity	Translation	History Taking and General Physical Examination				
			Dr. Uzma Zafar (Even)	Dr. Aneela (Odd)	Dr. Imran Saeed (Odd)	Dr. Saima Mir (Even)			
18-03-2023 Saturday	Dissection/Spotting		**ANATOMY (LGIS)**		**BIOCHEMISTRY (LGIS)**		BREAK	**Practical & Tutorial** Topics & Venue mentioned at the end	SDL Anatomy Breast
			Histology & Development of Mammary Gland	Histology & development of Mammary Gland	Mutation	Recombinant DNA/ PCR			
			Ass. Prof. Dr Mohtasham (Even)	Prof. Dr. Ayesha (Odd)	Dr. Aneela Jamil (Even)	Dr. Kashif Rauf (Odd)			
	Online Clinical Evaluation will be conducted from 12 to 12,15 noon on 16th March,2023								

Topics For Practical with Venue	Topics For Small Group Discussion& CBLs With Venue
• Mammary Gland (Anatomy/Histology-practical) Venue-Histology Laboratory (Dr. Ali Raza) • Tonicity (Biochemistry practical) Venue- Biochemistry laboratory • Apparatus identification (Introduction to centrifuge machine) (Physiology-Practical) Venue-Physiology Laboratory	• Physiology SGD – Cellular control mechanism, cell cycle, programmed cell death, Apoptosis • Biochemistry CBL – Genetics (PCR) - Lecture Hall 3

Schedule For Practical / Small Group Discussion

Day	**Histology Practical**	**Biochemistry Practical**	**Physiology Practical**	**Physiology SGD**	**Biochemistry SGD**
Monday	C	B	E	A	D
Tuesday	D	C	A	B	E
Wednesday	E	D	B	C	A
Thursday	B	A	D	E	C
Saturday	A	E	C	D	B

Venue For First Year Batches for Anatomy Dissection / Small Group Discussion

Batches	**Roll No**	**Anatomy Teacher**	**Venue**
A	01-120	Dr. Zeneara Saqib	Lecture Hall No.03 Anatomy Lecture Hall
B	121-240	Dr Urooj Shah	Lecture Hall No.04 Anatomy Lecture Hall
C	241-onwards	Dr Ali Raza	Dissection Hall

Venue For First Year Batches For PBL & SGD Team-I

Batches	**Roll No**	**Venue**	
Batch-A1	(01-35)	Lecture Hall no.05 (Physiology)	Dr. Sheena Tariq
Batch-A2	(36-70)	Lecture Hall no.04 (1st Floor Anatomy)	Dr. Uzma Kiani
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)	Dr. Fahd Anwar
Batch-B2	(106-140)	Conference room (Basement)	Dr. Fareed ullah
Batch-C1	(141-175)	Lecture Hall N0. 04 (Basement)	Dr. Maryam Abbas (PGT Physiology)
Batch-C2	(176-210)	Lecture Hall NO. 05 (Basement)	Dr. Nayab (PGT Physiology)
Batch-D1	(210-245)	Lecture Hall NO. 03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Shahrukh (PBL) Dr. Muhammad Usman (SGD)
Batch-E1	(281-315)	Lecture Hall no.01	Dr. Ismail (PGT Physiology)
Batch-E2	(315 onwards)	Lecture Hall no.02	Dr. Uzma Zafar (PBL) Dr. Kamil Tahir (SGD)

Sr. No	**Batch**	**Roll no**	**Names of Teachers**	
			Biochemistry	**Physiology**
1.	Batch – A	01-70	Dr. Almas Ijaz	Dr. Sheena Tariq
2.	Batch –B	71-140	Dr. Rahat Afzal	Dr. Uzma Kiani
3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Fahd Anwar
4.	Batch –D	211-280	Dr. Uzma Zafar	Dr. Maryam Abbas
5.	Batch -E	281-onwards	Dr. Faiza Zafar	Dr. Fareed

Venues for Large Group Interactive Session (LGIS) and SDL

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 03
Even Roll Number	New Lecture Hall Complex Lecture Theater # 02

Time Table For Foundation Module (Sixth Week)
(20-03-2023 To 25-03-2023)

20-03-2023 Monday	Anatomy Viva Voce (Roll no :1-180 students) & Physiology Viva Voce (Roll no :181 to 322 students)
21-03-2023 Tuesday	Physiology Viva Voce (Roll no :1-180 students) & Anatomy Viva Voce (Roll no :181 to 322 students)
22-03-2023 Wednesday	Anatomy Theory Paper & MOCK OSPE
23-03-2023 Thursday	Pakistan Day 
24-03-2023 Friday	Physiology theory Paper& Mock Video Assisted Quiz
25-03-2023 Saturday	Biochemistry Theory paper& Allied

Note: Timetable Subject to Change According To The Current Circumstances

(Logistic details of Assessments will be notified separately)

SECTION VI

Table of Specification (TOS) For Foundation Module Examination for First Year MBBS

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3		
1.	Anatomy	25	15	5	5	5	25	1	2	2	50	100
2.	Physiology	20	12	6	2	4	20	1	2	1	40	90
3.	Biochemistry	20	10	9	1	3	15	0.5	1.5	1		35
4.	Medical education	5										5
5.	Bioethics & Professionalism	1										1
6.	Research, Artificial Intelligence & Innovation	10										10
7.	Pharmacology	2										2
8.	Pathology	3										3
9.	Medicine	2										2
10.	Surgery	1										1
11.	Obs & Gynaecology	1										1
										Grand Total	250	

Annexure I

(Sample MCQ & SEQ papers)

RAWALPINDI MEDICAL UNIVERSITY
ANATOMY DEPARTMENT
1ST YEAR MBBS MCQs FOUNDATION MODULE EXAM

1. In a CT scan, a frame is taken longitudinally through the sagittal suture. This plane is also called as
    a. Median Plane
    b. Para Saggital plane
    c. Coronal Plane
    d. Frontal plane
    e. Transverse plane

2. During assessment of motor system of the upper limb, the doctor supinates the upper limb. During this movement there is a
    a. Decrease in the angle at the elbow joint
    b. Increase in the angle at the elbow joint
    c. Rotation of the forearm and hand laterally from the midprone position
    d. Rotation of the forearm and hand medially from the midprone position
    e. Movement such as palm of the hand faces posteriorly

3. After a road traffic accident, a patient presented in ER with pain Upper limb. Radiologist reported the fracture of medial epicondyle of humerus. The nerve prone to injury at this level of humerus is:
    a. Axillary nerve
    b. Ulnar nerve
    c. Median nerve
    d. Radial nerve
    e. Scapular nerve

4. During clinical examination of a 52 years old female, a swelling was found under the skin of chest coinciding with the lateral border of teres major. The group of lymph nodes most likely involved is
    a. Anterior axillary
    b. Posterior axillary
    c. Apical
    d. Central
    e. Infraclavicular

5. Most of lymph of breast drains to:
    a. Pectoral lymph nodes.
    b. Internal thoracic lymph nodes.
    c. Apical lymph nodes.
    d. Central lymph nodes.
    e. Subscapular lymph node.

RAWALPINDI MEDICAL UNIVERSITY
ANATOMY DEPARTMENT
1ST YEAR MBBS SEQs FOUNDATION MODULE EXAM

Note: Attempt all questions. All questions carry equal marks. Draw diagram where necessary

1. During a difficult labour baby's upper limb was excessively pulled. Later on he developed right sided muscular weakness in forearm and a claw hand.
    a. Name the condition he is suffering from? (1)
    b. Give relations of brachial plexus with special reference to axillary artery. (2)
    c. Enumerate nerves arising from roots and trunks of brachial plexus. (2)

2. A female patient of 42 years of age presented to hospital with painless swelling of left breast along that was firm and adherent to chest wall. On examination, oedematous skin was also present around the swelling.
    a. Name the condition she may be suffering from (1)
    b. Give anatomical reason why breast tissue is fixed to underlying chest wall (2)
    c. Discuss lymphatic drainage of breast

RAWALPINDI MEDICAL UNIVERSITY
PHYSIOLOGY DEPARTMENT
1ST YEAR MBBS MCQs FOUNDATION MODULE EXAM

1. Peroxisomes contain:
   a. Lipase
   b. Oxidase
   c. Hydrolase
   d. ATPase
   e. Transferase

2. Gain of the feedback system is calculated by:
   a. Gain= correction error
   b. Gain error/ correction
   c. Gain correction/error
   d. Gain-correction-error
   e. Gain-correction/error 100

3. Enzymes necessary for oxidative phosphorylation are present mainly in which part of mitochondria?
   a. Cristae
   b. Mitochondrial matrix
   c. Outer membrane
   d. Inner membrane
   e. Outer chamber

4. Following part of cilia has ATPase activity:
   a. Axoneme
   b. Tubulin
   c. Flagellum
   d. Basal body
   e. Dynein arm

5. The sequence of three DNA bases in a gene is called:
   a. DNA polymer
   b. Codon
   c. Anticodon
   d. Genetic code
   e. Okazaki fragment

RAWALPINDI MEDICAL UNIVERSITY
PHYSIOLOGY DEPARTMENT
1ST YEAR MBBS SEQs FOUNDATION MODULE EXAM

Q.1 a. Define active transport and name its types (1,1)

b. Enumerate the functions of Golgi apparatus (3)

Q.2 A 40 years old male presented in medical emergency with complaints of severe headache, confusions and fatigue. On examination his blood pressure was 180/110?

a. Define homeostasis? Name the type of feedback mechanism that controls blood pressure? (2)

b. Write down the functions of glycocalyx? (3)

RAWALPINDI MEDICAL UNIVERSITY
BIOCHEMISTRY DEPARTMENT
1ST YEAR MBBS MCQs FOUNDATION MODULE EXAM

1. Serum enzyme begins to raise in 4-8 hours of acute Myocardial Infarction is:
    a. CKMB
    b. LDH
    c. AST
    d. ALT
    e. Gama GT
2. Fluidity of cell membrane is maintained by
    a. Water
    b. Triglycerides
    c. Cholesterol
    d. Integral protein
    e. Peripheral protein
3. The nitrogen base in inosine monophosphateis:
    a. Ionone
    b. Inulin
    c. Hypoxanthine
    d. Xanthine
    e. Inosine
4. Transfer RNA transfers:
    a. Information from DNA to ribosomes
    b. Information from mRNA to cytosol
    c. Amino acid from cytosol to ribosomes
    d. Proteins from cytosol to ribosomes
    e. Protein form ribosome to Golgi apparatus

SEQ

Q1. a. Describe different mechanisms of enzyme catalysis. 2.5
b. Explain Base Excision Repair of DNA. 2.5

RAWALPINDI MEDICAL UNIVERSITY
BIOETHICS DEPARTMENT
1ST YEAR MBBS MCQs FOUNDATION MODULE EXAM

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.

a. Bio-piracy
b. Biosafety
c. Bioethics
d. Bio-patents
e. Bio-logistic

2. The right of patients having self-decision is called.

a. Justice
b. Autonomy
c. Beneficence
d. Veracity
e. Fidelity

3. Following is not code of ethics.

a. Integrity
b. Objectivity
c. Confidentiality
d. Behaviour
e. Autonomy

4. -------in the context of medical ethics, if it's fair and balanced

a. Justice
b. Autonomy
c. Beneficence
d. Veracity
e. Fidelity

5. ------Principle requiring that physicians provide, positive benefits

a. Justice
b. Autonomy
c. Beneficence
d. Veracity
e. Fidelity