



FOUNDATION MODULE STUDY GUIDE

This Study guide of the foundation module outlines the key components and areas for the facilitation of the students.

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Vision of KMU

Khyber Medical University: Vision



Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

Introduction

The College of Medicine at Abbottabad International Medical Institute has a long history of preparing students to take on the rigors of a wide variety of post-graduate training opportunities in institutions in Pakistan and around the Globe. We believe that to meet the needs of our students, faculty and community, we must strive to continuously improve our curriculum.

Lead, Serve, Inspire will be the curriculum for tomorrow's medicine, designed to shape the doctor for the future.

AIMI's reputation for curricular innovation, acclaimed faculty, pioneering research and world class patient care is well established. We must champion innovative thinking to ensure that we are training the types of doctors who will shape the future of medicine and fulfill our mission to improve people's lives.

History

1. That the Abbottabad International Medical College Abbottabad was established in 2002.
2. The Hazara University gave affiliation to this medical college on 01.04.2002 and reconfirmed the affiliation on 05th October 2003 and the students of this medical college were enrolled by the Hazara University and their professional examinations were taken by the University and students kept progressing.
3. Higher Education Regulatory Authority HERA inspected the college in March 2004, the inspection team was headed by the chairman himself and the members included Principal Ayub Medical College (a PMDC member), Dean faculty of sciences University of Peshawar, Deputy Secretary Higher Education. The inspection was overall supervised by

chairman standing committee on Higher Education NWFP, (a sitting member of NWFP assembly). The committee was satisfied with the available facilities at AIMC and unanimously decided to recognize the college and the college was registered by the HERA on 27.03.2004.

4. The college shifted its affiliation from Hazara University to Mohi Uddin Islamic University, Narian Sharif AJ&K after due process of NOC.
5. The college was also inspected by the Secretary Higher Education, Government of NWFP and he was satisfied with the good standard of this college.
6. The college was once again inspected by the team of Higher Education Regulatory Authority in June 2007 headed by the Chairman himself. A copy of inspection report was sent to PMDC and Higher Education Commission of Pakistan, the report itself speaks of the excellent standard of our medical college.
7. On the insistence and persistent directives of Government of Pakistan Ministry of Health, PMDC inspected our college on 7th February 2008 and they met the faculty and the students.
8. The Executive Committee of the PMDC decided to reinspect the college and its teaching Hospital DHQ Haripur and this was done on 28th May 2008.
9. The PM&DC approved the college for recognition for fifty students in its 111th Meeting on 2nd and 3rd August 2008 and this was upgraded by the Council for 100 students on reinspection in its 118th meeting on 3rd April 2011.

All departments of the Abbottabad International Medical Institute are driven by our MISSION:

“To improve people's lives through innovation in research, education and patient care.”

We share a common VISION:

To work as a team shaping the future of medicine by creating, disseminating and applying new knowledge and by personalising health care to meet the needs of each individual.

Central to how we carry out our mission and vision are our core VALUES:

Excellence , collaborating as one Institution, integrity and personal accountability, openness and trust, diversity in people and ideas, change and innovation, simplicity in our work, empathy and compassion, and leadership.

Our mission vision and values represent who we are and who we strive to be. They are our commitment to you. Our students, trainees, researchers, educators, clinicians, staff, alumni and friends of the Abbottabad International Medical Institute.

Curriculum Committee AIMI

Chair:

Professor Dr. Muhammad Akbar Dean AIMI Abbottabad

Co-Chair:

Dr. Muhammad Javed vice Dean AIMI Abbottabad.

Clinical Sciences:

- Dr. Jahangir Khan Department of Medicine AIMI Abbottabad
- Dr. Aziz Awan, Department of Ophthalmology AIMI Abbottabad.
- Dr. Muhammad Yousaf of ENT AIMI Abbottabad
- Maj[®] Dr. Aasya Yaqoob Department of Gynae AIMI Abbottabad
- Dr. Sajjad Department of Surgery AIMI Abbottabad
- Dr. MumtazKhan Barki, Department of Pediatrics AIMI Abbottabad
- Dr. Rifatullah Department of Neuro Surgery AIMI Abbottabad
- Dr. Sumaira Kazmi Department of Medicine AIMI Abbottabad

Behavioral Sciences:

- Dr Younis Khawaja Department of Psychiatry Abbottabad international Medical Institute
- Zahida Zaman (Clinical Psychologist)

Medical Education

- Dr. Joharia, Department of Medical Education, Abbottabad international Medical Institute.

- Dr. Anwar Shahzad, Department of Medical Education, Abbottabad international Medical Institute.

Basic Sciences:

- Prof Dr. Shahjahan Department of Pathology, AIMI Abbottabad
- Prof Dr. Tariq Mehmood Department of Physiology, AIMI Abbottabad
- Prof Dr. Hussain Department of Biochemistry, AIMI Abbottabad
- Associate Dr. Shugufta Shafi Department of Forensic Medicine, AIMI Abbottabad
- Prof Dr. Rashid Department of Pharmacology, AIMI Abbottabad.
- Prof Dr. Arshad Wahab Department of Community Medicine, AIMI Abbottabad
- Prof Dr. Abdurrashid, Department of Anatomy, AIMI Abbottabad

Foundation Module committee

Module coordinator

- Dr. Gul Mehnaz Assistant Professor **Pharmacology**

Module Head of Assessment

- Professor Dr. Masood Khan Physiology
- **Biochemistry Module Secretary**

Members

- Dr. Rehana Rasool Khan Assistant Professor Public Health & Research
- Dr. Shamshair Department of Anesthesia
- Dr. Sadia **Biochemistry**
- Prof Dr. Salma Professor **Pathology**
- Dr. Maheen Lecturer **Physiology**
- Dr. SM Yadain Assistant Professor **Forensic Medicine**
- Dr. Sana Shakoor Demonstrator **Community Medicine**
- Dr. Fawad Lecturer **Forensic Medicine**
- Miss. Hajira Hidayat **Student of Final Year**
- Miss. Momal Irshad **Student of Final Year**

Integrated curriculum:

An integrated curriculum is all about making connections, whether to real life or across the disciplines, about skills or about knowledge. An integrated curriculum fuses subject areas, experiences, and real-life knowledge together to make a more fulfilling and tangible learning environment for students. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples. Case based discussions, computer-based assignments, early exposure to clinics, wards, and skills acquisition in skills lab are characteristics of integrated teaching program.

Outcomes of the curriculum:

The outcomes of the curriculum of MBBS According to the PMDC are as follows

- Knowledgeable
- Skilful
- Community Health Promoter
- Problem-solver
- Professional
- Researcher
- Leader and Role Model

KNOWLEDGE

By the end of five year MBBS program the KGMC student should be able to;

1. Acquire a high level of clinical proficiency in history taking, physical examination, differential diagnosis, and the effective use of medicine's evolving diagnostic and procedural capabilities including therapeutic and palliative modalities
2. Manage the common prevalent diseases in community
3. Identify the common medical emergencies
4. Develop plan for prevention of common community diseases

5. Formulate a referral plan
6. Compose a prescription plan

PSYCHOMOTOR

By the end of five year MBBS program the KGMC student should be able to;

1. Demonstrate the ability to perform the disease specific relevant examination
2. Respond to common medical emergencies
3. Master the skill of first aid
4. Perform BLS
5. Apply the best evidenced practices for local health problems

AFFECTIVE

By the end of five year MBBS program the KGMC student should be able to

1. Relate to patient and careers vulnerability
2. Demonstrate ethical self-management
3. Counsel and educate patients and their families to empower them to participate in their care and enable shared decision-making.
4. Display compassion with patient and colleagues
5. Demonstrate in clinical care an understanding of the impact of psychological, social, and economic factors on human health and disease

General Learning Outcomes of the Module

By the end of this module the students should be able to;

Knowledge

1. Familiarize with the MBBS system based curriculum
2. Recognize the role of different disciplines in studying human body and its diseases.
3. Describe the structure, function and biochemical composition of cell.
4. Describe the cell division, its types and genetic material along with its clinical correlation.
5. Describe the basic organization of human body.
6. Explain the maintenance of homeostatic mechanism.
7. Describe the various stages of pre embryonic human development and correlate them with various malformations.
8. Describe the importance of buffer and PH system.
9. Describe various cellular adaptations during cell growth, differentiation and cell injury.

Skills

1. Describe the basic laboratory techniques and use of microscope.
2. Follow the basic laboratory protocols.
3. Perform biochemical analysis of carbohydrates.

Attitude

1. Follow the basic laboratory protocols.
2. Participate in class and practical work efficiently.
3. Maintain discipline of the college.
4. Follow the norms of the college properly.
5. Communicate effectively in a team with colleagues and teachers.

6. Demonstrate professionalism and ethical values in dealing with patients, cadavers, colleagues and teachers.
7. Communicate effectively in a team with colleagues and teachers.
8. Demonstrate the ability to reflect on the performance.

Table of Specification

Theme 1: Orientation				
SNO	Topic	Learning Outcomes	MIT	Assessment
ANATOMY				
1	Anatomy and its sub branches	Define anatomy and its branches Describe purpose of study of anatomy and its branches	Lecture	MCQs
PHYSIOLOGY				
2	Physiology and its sub branches	Enumerate the branches of physiology	Lecture	MCQs
BIOCHEMISTRY				
3	Introduction to biochemistry and its implication in medicine	Define biochemistry Discuss the role of biochemistry in medicine.	Lecture	MCQs
PATHOLOGY				
4	Introduction to pathology and its implication in medicine	Define pathology Enumerate the different branches of pathology. Identify different sampling and processing techniques in different branches of pathology.	Lecture	MCQs
PHARMACOLOGY				
5	Introduction to pharmacology and its role in modern medicine	Define pharmacology and role of pharmacology in medicine. Define the pharmaco-dynamics and pharmacokinetics	Lecture	MCQs
COMMUNITY MEDICINE				
6	Introduction to community Medicine and its implication	Describe Role of community medicine/public health in health care system.	Lecture	MCQs
FORENSIC MEDICINE				

7	Introduction to Forensic Medicine and Toxicology	Define Forensic Medicine, forensic pathology and state Medicine. Identify the Branches of Forensic Medicine. Describe the History of Forensic Medicine. Discuss the scope of Forensic Medicine. Identify the essential facilities for medico legal investigation. Define Medical Jurisprudence (not included for assessment in foundation module first year MBBS)	Lecture	MCQs
8	Pakistan Medical & Dental Council, Consent.	Describe the structure and functions of Pakistan Medical and Dental Council.	Lecture	MCQs

MEDICAL EDUCATION				
9	Curriculum structure Teaching learning strategies	Discuss the curriculum and modules. Describe the use of study guides.(not to be assessed) Differentiate between various teaching & learning strategies. Enlist various assessment tools & assessment policy. (Not to be assessed).	Lecture	
IT Skills				
10	Importance of IT skills	Define IT and its importance	Demonstration	MCQs
11	MS word skills PowerPoint skills Excel sheet	Prepare the assignment on MS word Prepare the presentation on power point Use the excel sheet		
Library				
12	Literature search and library resources	Literature search skills	Lecture	Formative

Theme 2: Cell				
SNO.	Topic	Learning Outcomes	MIT	Assessment
ANATOMY				
13	Cell structure and its Organelles	<ul style="list-style-type: none"> Describe the cell as a living unit of body Describe the structure of cell and its organelles. Describe the structure of cytoplasmic organelles of the cell & correlate it with their functions. 	Lecture	MCQs
14	Nuclear structure & components	Describe the structure of the nucleus, nucleolus & chromosome and their functions in cell integrity.	Lecture	MCQs
15	Cell division Mitosis	Explain the process of cell division. Describe mitotic cell division with its stages.	Lecture	MCQs
16	Meiosis	<ul style="list-style-type: none"> Explain the process of Meiosis Describe karyotyping. Explain the non-disjunction of chromosomes. Correlate the process of non-disjunction with chromosomal abnormalities 	Lecture	MCQs
PHYSIOLOGY				
17	Cell membrane physiology	<ul style="list-style-type: none"> Explain Intra cellular and extra cellular environment. Correlate cytoplasmic organelles with their functions. 	Lecture	MCQs
18	Homeostasis	<ul style="list-style-type: none"> Define homeostasis. Describe the Homeostatic mechanism of major functional systems. Describe the characteristics of control systems with examples 	Lecture	MCQs
19	Membrane potential	<ul style="list-style-type: none"> Define membrane potential Describe ionic conc. differences across cell membrane Explain the Nernst equation. Explain origin of normal resting membrane potential 	Lecture	MCQs
20	Movements of cell	<ul style="list-style-type: none"> Explain the amoeboid movement of cells. Describe the ciliary movements 	Lecture	MCQs

21	Depolarization & Repolarization	<ul style="list-style-type: none"> Explain the role of voltage gated Na⁺ and K⁺ channels in action potentials. Discuss the changes in conductance of Na and K channels with changes in membrane potentials 	Lecture	MCQs
BIOCHEMISTRY				
22	Biochemical structure of cell	Explain the Bio-chemical composition of cell organelles and cytoplasm	Lecture	MCQs
	Bio chemical structure of Mitochondria	<ul style="list-style-type: none"> Describe the chemical structure of mitochondrial membrane. Explain the biochemical importance of mitochondrial membrane. 		
23	Nuclear membrane	<ul style="list-style-type: none"> Describe Bio-chemical structure of nuclear membrane and its functions. 	Lecture	MCQs
24	RNA & DNA	<ul style="list-style-type: none"> Define and explain nucleotides and nucleosides. Describe the components of nucleotides Describe the functions of Nucleotides Describe the types of nucleic acids Differentiate between RNA and DNA.. 	Lecture	MCQs
26	Buffer	<ul style="list-style-type: none"> Define Buffer and its role in maintenance of body PH Define colloidal state and Henderson Hasselbalch equation. Define adsorption and how it occurs. Explain ion exchange resin 	Lecture	MCQs
27	Cellular membrane transport mechanism	<ul style="list-style-type: none"> Explain membrane transport. Discuss passive diffusion, active transport, and facilitated transport via a channel or carrier. Describe and evaluate the role of ion gradients, co transporters, and ATP in active transport mechanisms. 	Lecture	MCQs
PATHOLOGY				
28	Cell injury	<ul style="list-style-type: none"> Describe the various causes of cell injury. Describe the response of a normal cell to stimuli. Describe the mechanisms of cell injury. Describe the different types of cellular adaptations. 	Lecture	MCQs
PHARMACOLOGY				

29	Routes of administration of drugs	<ul style="list-style-type: none"> Enlist the route of administration of a drug. 	Lecture	MCQs
30	TRANSMEMBRANE DRUG TRANSPORT	<ul style="list-style-type: none"> Explain how drugs are transported across cell membrane and factors affecting it 	Lecture	MCQs
31	Receptor and cellular basis	Enlist the types of drug receptors	Lecture	MCQs

LAB WORK				
32	The Microscope	<ul style="list-style-type: none"> Identify parts of microscope. Demonstrate operation of microscope. Describe the method of focusing slide at different magnifications. Follow the specified norms of lab work. 	Demonstration / Practical	OSPE
33	Lab Equipments	Introduction to lab techniques Identify the equipments used in lab work	Demonstration / Practical	OSPE
34	PH and buffer solutions	Define normal solution Define standard solution. Prepare 0.1N solution of NaOH. Prepare 0.1N solution of HCL. Measure the PH of given solution (practical).	Demonstration / Practical	OSPE

Theme 3: Growth and development				
S N O	Topic	Learning Outcome		
35	Introduction To Embryology	<ul style="list-style-type: none"> Describe the developmental stages. Describe the embryologic terminology. Explain significance of embryology. 	Lecture	MCQs
36	Spermato-Genesis	<ul style="list-style-type: none"> Describe the process of spermatogenesis. Differentiate between spermiogenesis and spermatogenesis. Describe the morphological changes during maturation of gametes. 	Lecture	MCQs
37	Oogenesis	<ul style="list-style-type: none"> Describe oogenesis and its correlation with meiosis. Compare the male and female gametes. 	Lecture	MCQs
38	Transport Of Gametes	<ul style="list-style-type: none"> Explain the transport of gametes. Describe the transport of sperms. Describe the oocyte transport. Explain the maturation of sperms. 	Lecture	MCQs
39	Female reproductive cycle	<ul style="list-style-type: none"> Describe the ovarian cycle. Discuss the process of follicular development Explain the process of ovulation. Correlate ovulation with the phases of menstrual cycle. 	Lecture	MCQs
40	Fertilization –Events	<ul style="list-style-type: none"> Define fertilization. Describe the process of fertilization. Explain assisted reproductive technologies like In-vitro fertilization (IVF), assisted IVF and intra cytoplasmic sperm injection (ICSI). 	Lecture	MCQs
41	Fertilization –Clinical Correlates Cleavage & Blastocyst Formation	<ul style="list-style-type: none"> Discuss the clinical correlation of the fertilization. Describe the process of cleavage of zygote. Discuss the formation of blastocyst. Summarize the events of first week of development. 	Lecture	MCQs

42	Implantation & Its Abnormalities	<ul style="list-style-type: none"> Describe the process of implantation. Enumerate the sites of implantation. Explain the clinical correlations of the implantation process. 	Lecture	MCQs
43	Amniotic cavity	<ul style="list-style-type: none"> Describe the formation of amniotic cavity Describe the development of embryonic disc 	Lecture	MCQs
		<ul style="list-style-type: none"> Describe the development of umbilical vesicle. Explain the development of Chorionic sac. 		
44	Events Of 2 nd Week Of Development	<ul style="list-style-type: none"> Summarize the events of second week of development. Explain the clinical correlates of the second week of development. 	Lecture	MCQs
45	Events of 3rd Week Of Development	<ul style="list-style-type: none"> Describe the process of gastrulation. Explain the process of Neurulation. Explain the development of somites. Describe the development of intra-embryonic coelom. 	Lecture	MCQs
46	Derivatives of germ layers	Describe briefly derivatives of germ layers <ul style="list-style-type: none"> Ectoderm Mesoderm Endoderm 	Lecture	MCQs
BIOCHEMISTRY				
47	Chemistry of Acids and Bases	<ul style="list-style-type: none"> Define acids, bases Describe strong acids and weak acids. Describe strong bases and weak bases. List different types and sources of acids and bases in our body Describe the mechanism of their normal balance and biochemical importance 	Lecture	MCQs
48	Importance of surface tension and viscosity in our body	<ul style="list-style-type: none"> Explain surface tension, viscosity, vapor pressure, normal boiling point and capillary action 	Lecture	MCQs

49	Carbohydrates -I	<ul style="list-style-type: none"> Describe carbohydrates and give their Bio-chemical importance. Classify Carbohydrates Explain carbohydrate and its Bio-chemical structure. Describe the different isomers of monosaccharides. e.g. Galactose, mannose, fructose, dextrose. Describe the role of dextrose in I/V infusion. Describe the role of mannitol in cerebral edema. 	Lecture	MCQs
50	Carbohydrates -II	<ul style="list-style-type: none"> Describe the structure of disaccharides and oligosaccharides. 	Lecture	MCQs
51	Carbohydrates -III	<ul style="list-style-type: none"> Relate the structure of polysaccharides with its clinical importance. List the functions of carbohydrates in cell membrane, energy provision and nutrition supply to different parts of body. 	Lecture	MCQs
COMMUNITY MEDICINE				
53	Determinants of health	Define health	Lecture	MCQs
		Describe the Determinants of Health		
54	Disease causation	<ul style="list-style-type: none"> Describe Spectrum of Disease Explain Natural History of Disease Explain Theories of Disease Causation. Differentiate between Disease Elimination and Eradication. 	Lecture	MCQs
55	Chain of infection	Describe reservoirs of infection & chain of infection	Lecture	MCQs
56	Levels of prevention	Discuss /describe Levels of Prevention	Lecture	MCQs
LAB WORK				
57	Sterilization	<ul style="list-style-type: none"> Explain the process of sterilization Enumerate the different methods of sterilization Observe the process of autoclaving in the laboratory 	Demonstration /Practical	OSPE
58				
59	Capillary Blood Sampling	<ul style="list-style-type: none"> Obtain capillary blood sample for hematological investigations through prick method Identify the sites for obtaining blood sample with different methods and list the indications for their use. 	Demonstration /Practical	OSPE

60				
61	Detection of Monosaccharide's	<ul style="list-style-type: none"> • Define Monosaccharide's • Discuss structure and types • Perform the sequence of tests to identify the monosaccharides in a given solution. 	Demonstration /Practical	OSPE
62	Detecting of Reducing and non- reducing Sugars	<ul style="list-style-type: none"> • Define reducing sugars, types. • Discuss structure and types of reducing sugars • Perform Benedicts test 	Demonstration /Practical	OSPE
63	Detection of Polysaccharides in a given Solution	<ul style="list-style-type: none"> • Define Polysaccharides. • Discuss structures and types of Polysaccharides • Perform the sequence of tests to identify the polysaccharides in a given solution. 	Demonstration /Practical	OSPE

Theme 4: Body tissues				
S N O	Topic	Learning Outcome		
ANATOMY				
64	Organization of human body	• Describe the levels of organization of human body	Lecture	MCQs/OSPE
65	Anatomical terms	• Describe the anatomical terms for planes, position and movements	Lecture	MCQs/OSPE
66	Classification of Bones	Describe the structure and function of bone Classify bones on the basis of length and shape. Identify the markings on bone	Lecture	MCQs/OSPE
67	Cartilage	Describe cartilage Classify the types of cartilage Describe the types of cartilages	Lecture	MCQs/OSPE

68	Introduction to Joints	Classify joints on the basis of structure. Describe the mechanism of movements of joint	Lecture	MCQs/OSPE
69	Muscles	Describe various muscle types along with structure.	Lecture	MCQs/OSPE
70	Skin / Integumentary system Skin (dermis & epidermis) Skin creases, Nails, Hairs, Glands (Sebaceous & sweat)	Discuss the anatomical structures of Skin / Integumentary system	Lecture	MCQs/OSPE
71	Lymphatic system	Describe the lymphatic system. Explain the functions of lymphatic system Describe the organization of lymphatic system Explain the mechanisms for the movement of lymph in the body.	Lecture	MCQs/OSPE
72	Nervous system Divisions (central & peripheral and somatic & autonomic)	Define the organization of nervous system Describe the divisions of nervous system Describe the formation of spinal nerve and concept of dermatome and myotome Describe the formation of nerve plexus.	Lecture	MCQs/OSPE
73	Autonomic Nervous system Sympathetic. parasympathetic nervous system	Describe the organization of autonomic nervous system Differentiate between sympathetic and parasympathetic nervous system on the basis of structure.	Lecture	MCQs/OSPE
74	Membranes Mucous membranes Serous membranes	Describe the structure of membranes of human body	Lecture	MCQs
	Fascia, ligaments and raphe	Describe the anatomy and significance of fascia, ligaments and raphe.	Lecture	MCQs
	Radiological anatomy	Identify various anatomical landmarks on radiography.	Lecture	MCQs

		Describe commonly used radiographs. Describe various view used for obtaining radiographs.			
		HISTOLOGY			
	Basic Body tissue Definition of tissue Epithelial tissue		Lecture	MCQs	
75	Connective tissue Muscular tissue Nervous tissue	<ul style="list-style-type: none"> Define tissue Describe the basic tissues in human body 			
	Epithelial tissues	Classify epithelium describe the general features of epithelium explain the specialized functions of different types of epithelial cells Describe the structure of main types of cell junctions	Lecture	MCQs/OSPE	
76	Classification of epithelium General characteristics and Functions of epithelium				
	Glandular Epithelium	Enlist glandular epithelia <ul style="list-style-type: none"> Classify them on the basis of morphology, nature of secretion and mode of secretion Differentiate between exocrine & endocrine glands on the basis of structure and function. 	Lecture	MCQs/OSPE	
77					
	Epithelial Cell Surface Specialization	Basement Membrane Connective tissue	<ul style="list-style-type: none"> Describe the surface specialization of epithelia 	<ul style="list-style-type: none"> Correlate their structure, with their location and function Describe the structure of basement membrane & correlate it with its 	
78		80			
79	Structure & Function Of				

function.	Lecture Lecture Lecture	M	SPE
❑ Define connective tissue.		C	MCQs/OS
❑ Classify connective tissues.		Q	PE
❑ Explain the different types of Connective tissues		s	
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84	Inflammation	<ul style="list-style-type: none"> Describe acute inflammation Describe events of acute inflammation Describe chronic inflammation Differentiate between acute and chronic inflammation. 	Lecture	MCQs
FORENSIC MEDICINE				
85	Death	<ul style="list-style-type: none"> Define death. Describe stages of death. Describe medico legal importance of stages of death.	Lecture	MCQs
LAB WORK				
86	Tissue Processing	Describe the process of tissue processing for histo-pathological examination.	Demonstration / Practical	OSPE
87	Anatomical terms	<ul style="list-style-type: none"> Demonstrate anatomical terms for planes, position and movements. Demonstrate standard anatomical position and its application. 	Demonstration / Practical	OSPE
88	H& E staining	Perform H & E staining of tissue slides under supervision in the laboratory	Demonstration / Practical	OSPE
89	Simple Epithelia	Identify and describe simple epithelia under M/S.	Demonstration / Practical	OSPE
90	Stratified Epithelia	Identify and describe stratified epithelia under M/S.	Demonstration / Practical	OSPE
91	Glands	Identify different types of glands under M/S.	Demonstration / Practical	OSPE
92	Smear preparation	Prepare a blood smear.	Demonstration / Practical	OSPE

Teaching and learning strategies:

The following teaching / learning methods are used to promote better understanding:

- ❑ Interactive Lectures
- ❑ Hospital / Clinic visits
- ❑ Small Group Discussion
- ❑ Skills session
- ❑ Self-Directed Study

Interactive lectures:

An interactive lecture is an easy way for instructors to intellectually engage and involve students as active participants in a lecture-based class of any size. Interactive lectures are classes in which the instructor breaks the lecture at least once per class to have students participate in an activity that lets them work directly with the material.

- The instructor might begin the interactive segment with an engagement trigger that captures and maintains student attention.
- Then the instructor incorporates an activity that allows students to apply what they have learned or give them a context for upcoming lecture material.
- As the instructor feels more comfortable using interactive techniques he or she might begin to call upon a blend of various interactive techniques all in one class period.

Hospital / Clinic visits:

In small groups, students observe patients with signs and symptoms in hospital or clinical settings. This helps students to relate knowledge of basic and clinical sciences of the relevant module.

Small group discussion (SGD):

The shy and less articulate are more able to contribute. Students learn from each other. Everyone gets more practice at expressing their ideas. A two way discussion is almost always more creative than individual thoughts. Social skills are practiced in a 'safe' environment e.g. tolerance, cooperation. This format helps students to clarify concepts acquire skills or attitudes. Students exchange opinions and apply knowledge gained from lectures, tutorials and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

Skills/Practical session:

Skills relevant to respective module are observed and practiced where applicable in skills laboratory or Laboratories of various departments.

Self-Directed learning (SDL):

Self-directed learning, which involves studying without direct supervision in a classroom/Library, is a valuable way to learn and is quickly growing in popularity among parents and students. Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Centre, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

Time tables:

The timetables for the module will be shared via Edmodo and the notice boards in advance.

Days	8:00 – 9:00 am	9:00 – 10:00 am		10:30 am – 12:00 pm	12:00 – 2:30 pm	
Week 2 THEME 2: Orientation/Cell						
Monday r	BIOCHEMISTRY ORIENTATION DR. Sadia	Physiology Orientation Dr Maheen	B R E A K	<u>PRACTICALS</u> Batch A: Histology Batch B: Physiology Dr Fouzia Batch C: Biochemistry Batch D: IT Skills	PHYSIOLOGY Cell Membrane Physiology Prof Dr Tariq	HISTOLOGY Cell Structure & Organelles –I DR Laila
Tuesday	ANATOMY ORIENTAT ION DR Mohibulla h wazir	PHYSIOLOGY Homeostasis Prof Dr Masood		<u>PRACTICALS</u> Batch A: IT Skills Batch B: Histology Batch C: Physiology Dr Maheen Batch D: Biochemistry	BIOCHEMISTRY Biochemical structure of Cell Prof Dr. Hussain	HISTOLOGY Cell Structure & Organelles –II DR Atif
Wednesda y	BIOCHEMISTRY Nucleic Acids, Nucleosides & nucleotides Chemistry Dr Nabila	PRIME BS: Biopsychosocial model of health care Dr Natasha		<u>PRACTICALS</u> Batch A: Biochemistry Batch B: IT Skills Batch C: Histology Batch D: Physiology Dr Fouzia	EMBRYOLOGY Meiosis Dr Mohibullah	PRIME P: PROFESSIONALISM 1 Miss Zahida Zaman

Thursday	BIOCHEMISTRY Biochemical Structure of Mitochondria and its functions Dr Aneela	PHYSIOLOGY Cell Membrane Potential Dr Sumaira	<u>PRACTICALS</u> Batch A: Physiology Dr Khateeb B: Biochemistry Batch C: IT Skills Batch D: Histology	EMBRYOLOGY Mitosis Dr Mohtadullah	BIOCHEMISTRY Bio-chemical structure DNA Dr sadia
Friday	PHYSIOLOGY Movements of Cell Ciliary movement Dr Masood	BIOCHEMISTRY Biochemical structure Structure of RNA Dr Sadia	PATHOLOGY Cell Injury Dr Shahjahan	JUM MA BREA K	
Saturday	PHYSIOLOGY Cell Repolarization & Depolarization 1 Dr Sumaira Kazmi	BIOCHEMISTRY Biochemical structure of nuclear membrane and functions Naila	BIOCHEMISTRY Structure of DNA Dr Hussain	PHARMACOLOGY Drug receptors, Routes of administration & and trans membrane drug transport.	

- 📄 Histology P: Operating microscope
- 📄 Physiology P: instruments

- 📄 IT skills: Email IDs
- 📄 Biochemistry P = PH & Buffers

Days	8:00 – 9:00 am	9:00 – 10:00 am		10:30 am – 12:00 pm	12:00 – 2:30 pm	
Week 3, THEME 3: Cell/Growth & Development of Human Body						
Monday 25th November	BIOCHEMISTRY Body PH and Henderson Hasselbalch equation Dr Hussain	White Coat Ceremony Auditorium	B R E A K	PRACTICALS Batch A: Pathology Batch B: Physiology Dr MaheenBatch C: Biochemistry Batch D: IT Skills	PHYSIOLOGY Cell Repolarization & Depolarization 2 Dr Sumaira Kazmi	PRIME E: ETHICS 1 Zahida Zaman
Tuesday 26th November	BIOCHEMISTRY Colloids, adsorption and ion exchange resin Dr Sadia	EMBRYOLOGY Introduction to Embryology Dr Mohtadullah		PRACTICALS Batch A: IT Skills Batch B: Pathology Batch C: Physiology Dr Filza Batch D: Biochemistry	PRIME P: Professionalism 2 Dr Rifatullah	C.MEDICINE Concept of health and disease Dr Anwar Shahzad
Wednesday 27th November	EMBRYOLOGY Female reproductive cycle Dr Atif	BIOCHEMISTRY Cellular Membrane Transport Dr Kalsoom		PRACTICALS Batch A: Biochemistry Batch B: IT Skills Batch C: Pathology Batch D: Physiology Dr Khateeb	EMBRYOLOGY Spermatogenesis Dr Atif	PRIME E: ETHICS 2 Dr Munir Abbasi
Thursday 28th November	EMBRYOLOGY Oogenesis Dr Jawad	BIOCHEMISTRY Carbohydrates I Dr Anum		PRACTICALS Batch A: Physiology Dr Shahida Batch B: Biochemistry Batch C: IT Skills Batch D: Pathology	SDL	

Friday 29th November	C. MEDICINE Determinants of Health Dr Farda	EMBRYOLOGY Transport of gametes Dr Atif		C. MEDICINE Disease causation Dr Natasha	Jumma Break	
Saturday 30th November	EMBRYOLOGY Fertilization events & Clinical Correlates Dr Abdurrashid	PRIME BS: Attitudes Dr. Sultan Zeb		BIOCHEMISTRY Carbohydrates –II Dr Naila	FORENSIC MEDICINE Introduction to forensic Medicine and Toxicology Dr SM Yadaï	Sports

Pathology P: Sterilization, Physiology P: Smear preparation, Biochemistry P = Carbohydrates detection IT Skills: Edmodo

Days	8:00 – 9:00 am	9:00 – 10:00 am		10:30 am – 12:00 pm	12:00 – 2:30 pm	
Week 4, THEME 3: Growth & Development of Human Body						
Monday	EMBRYOLOGY Cleavage & blastocyst formation Dr Atif	EMBRYOLOGY Implantation & its abnormalities Dr Mohibullah	B R E A K	<u>PRACTICALS</u> Batch A: Histology Batch B: Physiology Dr Farida Batch C: Biochemistry Batch D: IT Skills	BIOCHEMISTRY Carbohydrates III Dr Anum	HISTOLOGY Overview of epithelium DR SHAHAB
Tuesday	EMBRYOLOGY 1 st week of development Dr Niaz	BIOCHEMISTRY Carbohydrates IV Dr Hussain		<u>PRACTICALS</u> Batch A: IT Skills Batch B: Histology Batch C: Physiology Dr Khateeb Batch D: Biochemistry	EMBRYOLOGY Events of 2nd week of development Dr Atif	C. MEDICINE Levels of prevention Dr Reehana Rasool

Wednesda y	EMBRYOLOGY Events of 3rd week of development Dr Mohtadullah	BIOCHEMISTRY Carbohydrates V Dr Sadia		<u>PRACTICALS</u> Batch A: Biochemistry Batch B: IT Skills Batch C: Histology Batch D: Physiology Dr Fouzia	BIOCHEMISTRY Carbohydrates VI DR ANUM	C. MEDICINE Chain of infections Dr Anwar Shahzad
Thursday	BIOCHEMISTRY Solution and its types Dr Sadia	EMBRYOLOGY Derivatives of three germinal layers & Clinical Correlates Dr Atif		<u>PRACTICALS</u> Batch A: Physiology Dr SMAheen Batch B: Biochemistry Batch C: IT Skills Batch D: Histology	BIOCHEMISTRY Emulsions and emulsifying agents Naila	PRIME R: Research 1 Introduction to Research Dr Anwar Shahzad/ Raja Nabeel
Frida y	BIOCHEMISTRY Importance of surface tension and viscosity in our body - Shakeela	PRIME BS: Attention and concentration		BIOCHEMISTRY Osmosis And Factors Affecting Osmotic Pressure Dr Sadia	JUMM A BREAK	
Saturday	BIOCHEMISTRY Buffers-Chemistry of acids and bases (acidosis & Alkalosis) Dr sadia	EMBRYOLOGY Development of placenta Dr Mohibullah		PRIME Behavioral Sciences	PRIME P: Personal development Plan	SPORTS

Histology P: Identify Epithelium 1 (simple & stratified) skills:

Physiology P: Oil immersion lens Biochemistry P = Carbohydrates detection 2IT

Days	8:00 – 9:00 am	9:00 – 10:00 am		10:30 am – 12:00 pm	12:00 – 2:00 pm	
Week 5, THEME 4: Human Body tissues, bones & joints						
Monday	GROSS ANATOMY Organization of human body Dr Mohibullah Wazir	GROSS ANATOMY Anatomical Terms & Positions Dr Atif	B R E A K	PRACTICALS Batch A: Histology (DR NAJMA) Batch B: Pathology Batch C: Biochemistry Batch D: Physiology Dr Farida	HISTOLOGY Glandular Epi DR SHAHAB	HISTOLOGY Structure & function of basement membrane DR SHAHAB
Tuesday	BIOCHEMISTRY Carbohydrates –VII Dr Hussain	GROSS ANATOMY Classification of bones Parts of bones Dr Mohtadullah		PRACTICALS Batch A: Physiology Dr Maheen Batch B: Histology (DRAtif) Batch C: Pathology Batch D: Biochemistry	PATHOLOGY Apoptosis & Necrosis Dr Sadaf	ANATOMY Lymphatic system Dr Najma Hameed
Wednesday	GROSS ANATOMY Intro to joints Movements of joints Dr Jawad	GROSS ANATOMY Synovial joints Dr Abdurrashid		PRACTICALS Batch A: Biochemistry Batch B: Physiology Dr Shehla Batch C: Histology (DR NAJMA) Batch D: Pathology	HISTOLOGY Epithelial cell surface I DR Atif	HISTOLOGY Epithelial cell surface II DR Jawad
Thursday	ANATOMY Membranes of the body (Serous & mucous) Dr Hassan	FORENSIC MEDICINE PMDC Dr Shugufta Shafi		PRACTICALS Batch A: Pathology Batch B: Biochemistry Batch C: Physiology Dr Maheen Batch D: Histology (Jawad Israr)	HISTOLOGY Intro to body tissues DR Atif	PRIME Research 2 Literature Review Dr Anwar shahzad/ Dr Sana Shakoor
Friday	GEN ANATOMY Introduction to Nervous system DrMohibullah Wazir			PRIME Memory	JUMM A BREAK	

Saturday	PATHOLOGY Acute inflammation I Dr Shahjahan	PATHOLOGY Acute Inflammation II Dr Salma		PRIME BS: Personality	ANATOMY Fasciae, ligaments and raphe DR Mohibullah wazir	Sports
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Pathology: Tissue preparation and H&E staining Histology P: Identify Epithelium 2 (Glands) Physiology P: Neubauer chamber Biochemistry: Carbohydrate detection

Days	8:00 – 9:00 am	9:00 – 10:00 am		10:30 am – 12:00 pm	12:00 – 2:00 pm	
Week 6, THEME 4: Human Body tissues, bones & joints						
Monday	GEN ANATOMY Sympathetic Parasympathetic Dr Mohibullah wazir	GEN ANATOMY Sympathetic Parasympathetic Dr Mohtadullah	B R E A K	PRACTICALS Batch A: Histology (DR NAJMA) Batch B: Pathology Batch C: Biochemistry Batch D: Physiology	HISTOLOGY Connective tissue I DR SHAHAB	HISTOLOGY Connective tissue II DR Atif
Tuesday	PHYSIOLOGY Autonomic nervous system Dr Tariq	PHYSIOLOGY Autonomic nervous system Dr Masood		PRACTICALS Batch A: Physiology Batch B: Histology(DR Jawad) Batch C: Pathology Batch D: Biochemistry	HISTOLOGY Connective tissue III DR Atif	PRIME Learning
Wednesday	BIOCHEMISTRY Charbohydrates-7(GAGs) Dr. Anum	PAL		PRACTICALS Batch A: Biochemistry Batch B: Physiology Batch C: Histology (DR NAJMA) Batch D: Pathology	HISTOLOGY Integumentary system Dr Shahab	PATHOLOGY chronic Inflammation Dr Sadf
Thursday	DSL Library	FORENSIC MEDICINE Death Dr Shugufta		PRACTICALS Batch A: Pathology Batch B: Biochemistry Batch C: Physiology	DSL Library	Sports

			Batch D: Histology (DR M)ohibullah		
Friday	DSL Library			JUMM A BREAK	
Saturday	EXAM				

Assessment tools:

Theoretical knowledge is tested by a written examination system constituted by multiple choice questions (MCQs). The assessment of practical knowledge involves oral, spot, or objective structured practical examinations (OSPE).

Multiple Choice Questions (MCQs):

- ❑ Multiple choice questions (MCQs) are a form of assessment for which students are asked to select the best choice from a list of answers.
- ❑ MCQ consists of a stem and a set of options. The stem is usually the first part of the assessment that presents the question as a problem to be solved; the question can be an incomplete statement which requires to be completed and can include a graph, a picture or any other relevant information. The options are the possible answers that the

student can choose from, with the correct answer called the key and the incorrect answers called distractors.

- ❑ Correct answer carries one mark, and incorrect 'zero mark'. There is NO negative marking.
- ❑ Students mark their responses on specified computer-based sheet designed for the college.
- ❑ The block exam will comprise of 120 MCQs and will be compiled according to the shared blueprint.

Objective Structured Practical Examination (OSPE):

- ❑ The content may assess application of knowledge, or practical skills.
- ❑ Student will complete task in define time at one given station.
- ❑ All the students are assessed on the same content by the same examiner in the same allocated time.
- ❑ A structured examination will have observed, unobserved, interactive and rest stations.
- ❑ Observed and interactive stations will be assessed by internal or external examiners.
- ❑ Unobserved will be static stations in which students will have to answer the questions related to the given pictures, models or specimens the provided response sheet.

- ❑ Rest station is a station where there is no task given, and in this time student can organize his/her thoughts.
- ❑ The Block OSPE will be comprise of 18 examined station and 7 rest stations. The stations will be assigned according to the shred blueprint.

Internal Evaluation:

Internal evaluation is a process of quality review undertaken within an institution for its own ends. 10% marks of internal evaluation will be added to final marks. This 10% will be based on

Distribution of 14 Marks for paper	
Marks obtained	Average of Percentage in Block exam and Pre Professional exam

Distribution of 10 Marks for Block A OSPE/OSCE	
Marks obtained	Average of percentage in Block OSPE Exam and Block Pre Prof OSPE
	Practical copies

Attendance Requirement:

More than 75% attendance is mandatory to sit for the modular examinations.

Learning resources:

The learning resources are as

follows Anatomy

- ❑ Clinical Anatomy by Regions by Richard S. Snell
- ❑ Gray's Anatomy for Students
- ❑ Langman`s Medical Embryology-14thEdition
- ❑ The Developing Human “by Keith L Moore”-10thEdition
- ❑ Textbook of Histology by Juncqueira
- ❑ Atlas of human Histology by Wheaters. 11thEdition
- ❑ <http://www.anatomyzone.com/>, <https://www.youtube.com/user/TheAnatomyZone>

Physiology

- ❑ Guyton and Hall Textbook of Medical Physiology
- ❑ Ganong's Review of Medical Physiology

❑ Human Physiology : Lauralee Sherwood

Biochemistry

❑ Textbook of medical biochemistry by Chatterjee-8th Edition

❑ Harpers Illustrated Biochemistry

❑ Lippincott's Illustrated Reviews: Biochemistry

Presentations for the classes and other relevant materials will be shared during the module via Edmodo.

