BAKHTAWAR AMIN
MEDICAL & DENTAL COLLEGE

Bakhtawar Amin Medical & Dental College

(BAMDC) Multan

STUDY GUIDE (2024-2025)

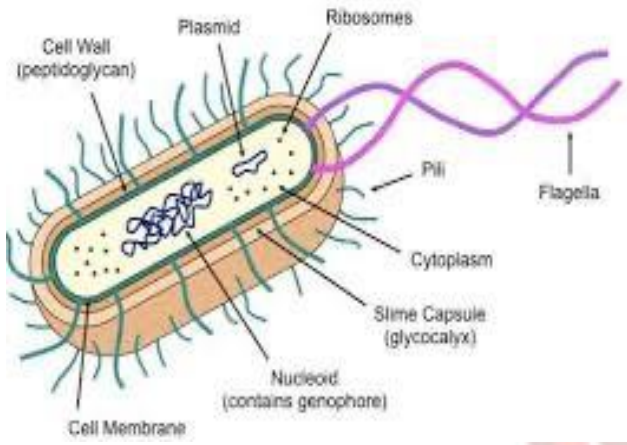
First Year MBBS

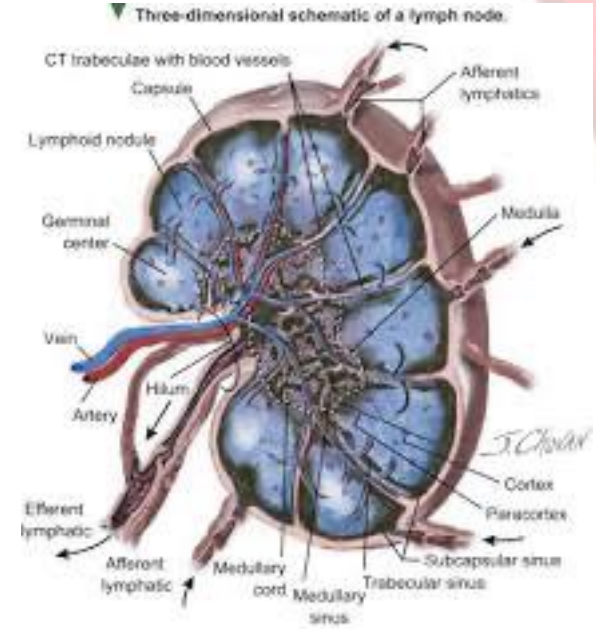
Study Guide 1st Year MBBS

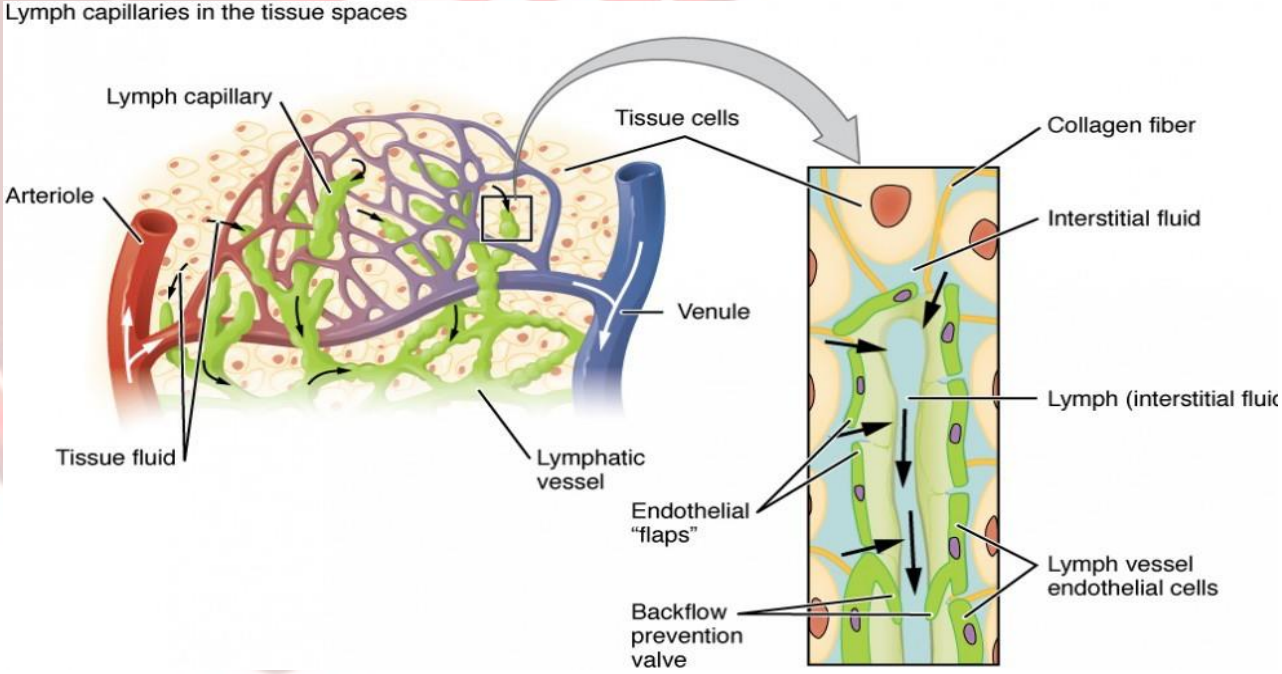
BLOCK 01 (FOUNDATION & H&L)

Duration: 08 & 03 Wks

2024-25







INTRODUCTION

WHAT IS A STUDY GUIDE?

This study guide book is designed for Medical Undergraduates by consolidated effort of all subjects across the year to provide students of BAMDC a resource material which would highlight important aspects of curriculum.

The study guide aims to promote self-regulated lifelong learning among students by giving them the control over their learning.

The pervasive curriculum aspects of undergraduates' competencies, assessment policies and curriculum coordinators are mapped in his guide book. Horizontal integration across the year better conceptual understanding while vertical integration promotes clinically relevant understanding.

BAMDC aims to improve health indicates of society by improvement of students and doctors in preventive health service provision and health education provision to society through community programs.

The study guide gives an overview of intended course outcomes and objectives in relation to the course content. The assessment methodology tailored to intuitional strategy is provided. This study guide has been carefully designed keeping in view PMDC and UHS curriculum and guide lining dedicated effort by faculty is done to make this guide tailored to student's needs.

Our aim to improve it by every passing day. This humble effort of all faculty acts as a guiding light for our dear students.

1. Rationale of Curriculum

Curriculum is a framework that sets expectations for students' learning. It serves as a guide for teachers, a roadmap if you will, that establishes standards for student performance and teacher accountability.

The curriculum should be student-oriented utilizing active processes for learning and should not make the student a passive recipient. The curriculum is materials used to convey information to students.

"A curriculum consists of the "roadmap" or "guideline" of any given discipline."

"The curriculum represents the expression of educational ideas in practice. The word curriculum has its roots in the Latin word for "track or race-course". From there, it came to mean course of study or syllabus." (David Prideaux)

The Pakistan Medical & Dental Council is a statutory body constituted by the Federal Government under the Pakistan Medical & Dental Council Ordinance, 1962.

The curriculum of the college has a vision and mission aligned with that of UHS and states as follows;

Vision:

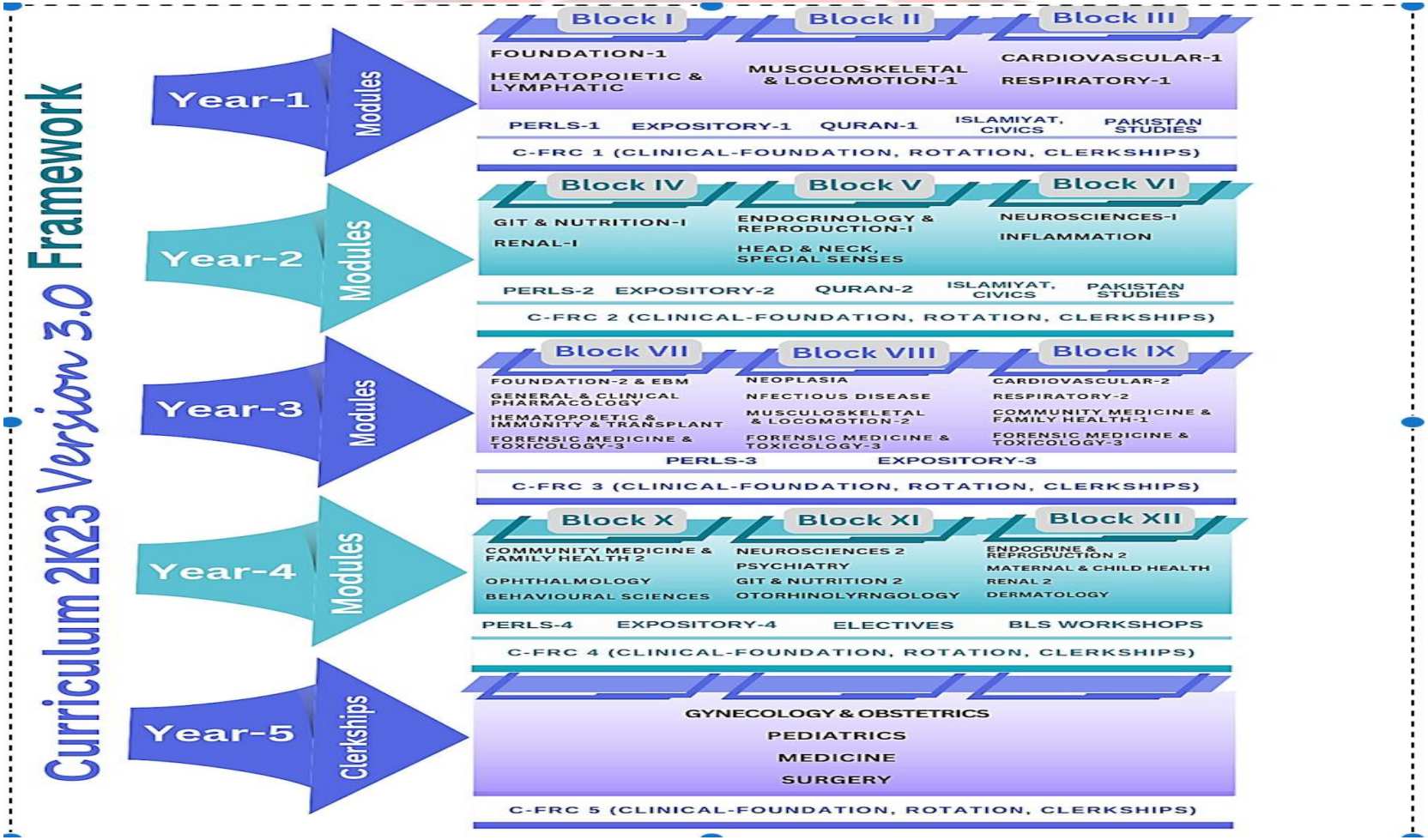
"Bakhtawar Amin Medical and Dental College will work to become the premier academic Medical College in the region dedicated to achieving excellence all around in medical education, clinical programs, and innovative research."

Mission:

"Bakhtawar Amin Medical and Dental College will lead in advancing health through the best clinical care, innovative research, and the education of tomorrow's leaders in biomedicine in a culture that supports diversity, inclusion, critical thinking, creativity and adhering to the highest ethical standards."

2. Curricular Framework

A significant highlight of this integrated curriculum is the proposed competency framework for the pre- clinical years. This framework is designed to empower students to seamlessly apply their knowledge of basic medical sciences to problem-solving scenarios in clinical years and clerkships. It serves as a bridge that ensures a cohesive transition between foundational knowledge and practical application.



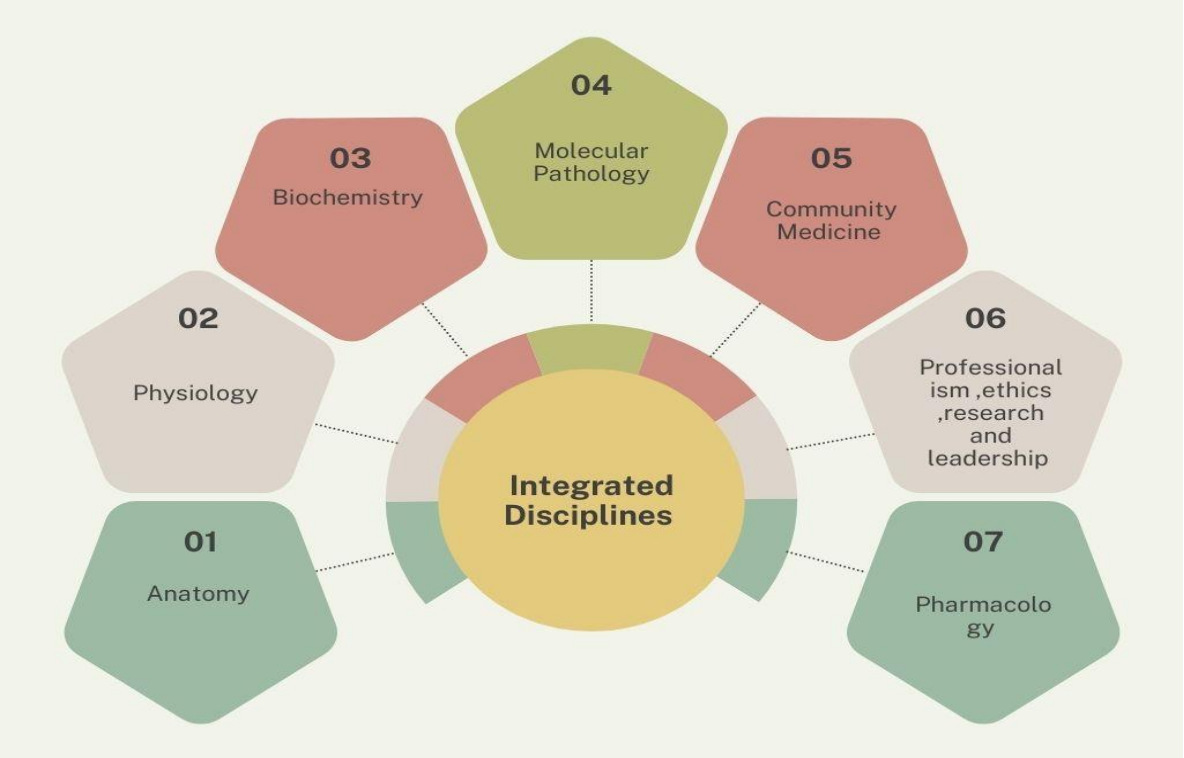
It is an aid to:

- Inform students how the student learning program of the semester-wise module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules and regulations

THE STUDY GUIDE:

- Communicates information on the organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial, and case-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as books, computer-assisted learning programs, web- links, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous and semester examinations on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focuses on information about examination policy, rules and regulations

Integrated disciplines



3. LEARNING METHODOLOGIES

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

- Interactive Lectures
- Hospital / Clinic visits
- Small Group Discussion
- Case- Based Learning
- Practical's
- Skills session
- E-Learning
- Self-Directed Study

Interactive lectures:

In large group, the lecturer introduces a topic which explains the underlying phenomena through questions, pictures, exercise, etc. Students are actively involved in the learning process.

Small group discussions:

This format helps students to clarify concepts and acquire skills and attitudes. Students exchange opinions and apply knowledge gained from lectures and self-study. The facilitator role is to ask probing questions, summarize, or rephrase to help clarify concepts.

Practical and manual skills:

In practical sessions students perform practical as assigned in the curriculum and syllabus provided by PMDC. They are also required to maintain a practical manual of the lab work. Understanding and effectively using the microscope, lab apparatus, blood pressure apparatus etc.

Self- directed learning:

Students' take 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 or after wards for self-study.

Assignments:

Students are given written formative assignments on designated topics.

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INTRODUCTION

Knowledge of the structure of the human body is the foundation of the practice of scientific medicine. It is therefore appropriate that you begin your preparation to become a physician with the study of gross anatomy. At the conclusion of the course, you will have dissected the entire human body and have a basic understanding of its structure. Your knowledge will be relevant to some degree to virtually all your future course work. Obtaining a thorough knowledge of gross anatomy now will pay major dividends in the future.

You will learn much more in gross anatomy than just terminology, concepts, and facts.

Anatomy at

Bakhtawar Amin Medical & Dental College, Multan

Human Anatomy

i. Goal:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross and microscopic structure and development of human body to provide a basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations.

ii. Objectives

A. Knowledge:

At the end of the course the student shall be able to

a. Comprehend the normal disposition, clinically relevant interrelationships, functional and cross-sectional anatomy of the various structures in the body

b. Identify the microscopic structure and correlate elementary ultra-structure of various organs and tissues and correlate the structure with the functions as a pre-requisite for understanding the altered state in various disease processes.
c. Comprehend the basic structure and connections of the central nervous system to analyze the integrative and regulative functions of the organs and systems. He/she shall be able to locate the site of gross lesions according to the deficits encountered.
d. Demonstrate knowledge of the basic principles and sequential development of the organs and systems, recognize the critical stages of development and the effects of common teratogens, genetic mutations and environmental hazards. He/she shall be able to explain the developmental basis of the major variations and abnormalities.

B. Skills

At the end of the course the student shall be able to;

a. Identify and locate all the structures of the body and mark the topography of the living anatomy.
b. Identify the organs and tissues under the microscope.
c. Understand the principles of karyotyping and identify the gross congenital anomalies.
d. Understand principles of newer imaging techniques and interpretation of CT scan, sonogram etc.
e. Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture and kidney biopsy etc.

C. Integration

From the integrated teaching of other basic sciences, student shall be able to comprehend and regulation and integration of the functions of the organs and systems in the body and thus interpret the anatomical basis of disease process.

Departmental Objectives

At the end of the Anatomy course, the students should be able to:

- mention, identify, show, draw and describe the structural components of the body responsible for carrying out normal body functions;
- use the above knowledge to understand, correlate and appreciate the other pre- clinical, para-clinical and clinical medical subjects;
- apply the knowledge of Anatomy with the knowledge of other medical subjects to provide optimum health services in the country and abroad.

List of Competencies to acquire:

- Adequate knowledge of the structural components of the body & correlate it with normal body functions.
- Using the above knowledge to understand, correlate and appreciate the other subjects to be taught in the para-clinical and clinical medical courses.
- Applying the knowledge of Anatomy with the knowledge of other medical subjects to provide optimum health services in the country and abroad.

Anatomy Course Outline

First Year:

1. General Anatomy
2. General Histology
3. General Embryology
4. Gross Anatomy

i. Upper Limb
ii. Lower Limb
iii. Thorax

Text Books & Syllabus

As per the Curriculum of PMDC & UHS

TEXTBOOKS

Gross Anatomy

1. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 15thEd., Vol-I, II
2. Grant's Dissector. Tank, Patrick W. 15thed., 2012.SS
3. Cunningham's Clinical Dissector
4. Clinically Oriented Anatomy by Moore, K.L., Dalley, A.F., 6th Ed.
5. Clinical Anatomy for Medical Students by Richard S. Snell.
6. Clinical Anatomy by R.J. Last, Latest Ed.
7. Gray's Anatomy by Prof. Susan Standring 39th Ed., Elsevier.
8. Atlas of Human Anatomy.Netter, F.H. Elsevier, 6th ed.,2014.
9. Grant's Atlas of Anatomy.Agur, A.M.R. and Dalley, A.F. 13thed.,2012

Histology

1. Medical Histology by Prof. Laiq Hussain Siddiqui
2. Wheater's Functional Histology, Young, B., O'Dowd, G., 6thed. 2014
3. Di-Fiore Atlas of Histology

Embryology

1. The Developing Human. Clinically Oriented Embryology by Keith L. Moore, 6th Ed.
2. Langman's Medical Embryology, Sadler, T.W.12thEd., 2011.

General Anatomy

1. General Anatomy by Prof. Laiq Hussain Siddique
2. General Anatomy by Prof. Tassaduq Hussain Sheikh

Neuro-Anatomy

1. Neuroanatomy by Richard S. Snell.

Reference Books

1. Color Atlas of Anatomy.Rohen, J.W., Lutjen-Drecoll, E. 7th Ed.,2010.
2. Histology: A Text and Atlas, Ross, M.H., and Pawlina, W. 7th Ed., ,2016.
3. Junqueira's Basic Histology,Mescher, A.L. 13thEd., 2013
4. Langman's Medical Embryology, Sadler, T.W.12thEd., 2011.
5. TheDevelopingHuman, Clinically Oriented Embryology, Moore, K.L, Persaud,

Code of Conduct in Dissection Laboratories

The following Code of Conduct will apply at all times in the Human Gross Anatomy Laboratory:

1. Dissection of the human body shall be performed with dignity and respect.
2. Students assigned to a cadaver will be responsible for the proper conduct of the dissection according to the dissection guide and faculty instruction.
3. All identifying information about the cadaver is confidential.
4. Students may not dissect or alter cadavers assigned to other students.
5. Human tissues, including prosections, bones, and skeletons, may not be removed from thelaboratories.

6. Neither the cadaver nor any dissected part may be photographed or videotaped.
7. Neither the cadaver nor any parts thereof are to be positioned or displayed in aninappropriate, comical or obscene manner.

Dissection is Mandatory:

1. Dissection is a privilege and is mandatory.
2. Every student is required to dissect at least one region or a part of a region as allotted by the demonstrator.
3. Attendance will be taken.
4. Anyone not attending the dissection lab, will be
   i. Called to account
   ii. Required to explain how He/she, think not dissecting advances his/her medical education and prepares them to take responsibility for the health and live soft their future Patients.
   iii. Fined Rs. 200-500/- if failed to satisfying the authority

PREPARING FOR THE 1st DAY OF DISSECTION

You will need:

i. A dissection guide
ii. An atlas
iii. Rubber gloves
iv. A dissecting kit
v. A lab coat
vi. Lab apparel is optional; it can be scrubs or regular clothing

vii. Mask and goggles are not necessary but are permissible

Instructions:

1. Once you change into lab attire, you should remain in the Dissection hall.
2. Lab attire is not appropriate in any other part of Academic block.
3. Familiarize yourself with the Laboratory:
   i. Inspect the gross anatomy laboratory/Dissection Hall and adjacent areas.
   ii. Immediately outside the main laboratory entrance note the Bulletin Board.
   iii. Important course information, updates and policies are posted on the Board.
   iv. Note x-ray view boxes, sinks, paper towel dispensers and first aid kits.
   v. Note the waste containers.
   vi. DO NOT stand on stools, chairs, table or dissection tables.
4. A representative assortment of bones for study will be found in the museum.
   i. Bones may be issued from the museum keeper after depositing the security money.
   ii. One or more skeletons will be available in the museum and dissection hall.

DISSECTING KIT/INSTRUMENTS

You are required to obtain the following items for dissection

1. white laboratory coat
2. 1 scalpel (#4 or #5 handle) with large disposal blades (Bard-Parker #20 or #22)
3. 1 pair of large surgical scissors (6-inch straight with one sharp &one blunt point)
4. 1 pair of Iris scissors (4-1/2inch)
5. 2 hemostats (straight)
6. 1Halstead mosquito clamp (curved,4-1/2inch)
7. 1double ended dissecting probe (Heavy Metal)

8. 1 large-tooth forceps (broad point)
9. CV-78 Thumbs forceps (4-1/2inch)
10. 1 small, fine-pointed forceps (4-1/2inch)
11. 1locks for assigned lockers
12. 1 opaque (non-see-through) clipboard

REJECTS THE MYTHS REGARDING DISSECTING THE CADAVERS

1. A considerable body of folklore has developed around gross anatomy.
2. Myths of events in the gross lab are perpetuated by misinformed laypersons and upper-class men playing mind games with new students.
3. Disregard such nonsense and don't let it color your expectations.
4. Also, you will find statements regarding the odor of the dissection hall, greatly exaggerated.
5. Patients with gangrene and autopsy rooms can smell far worse.

RESPECT THE CADAVER

1. Our slogan is "Respect Human Tissues, Dead or Alive."
2. Always be cognizant of the fact that your cadaver is the body of someone's loved one
3. Treat it as you would wish your own body, or that of a member of your family, to be treated.
4. Any procedure is appropriate if your motivation is to learn in order to be able to help others.
5. The privilege of dissection is made possible by the generosity of donors and the administration of Bakhtawar Ameen Medical & Dental College.
6. We intend that you make full use of the opportunity to learn from this donation.
7. Fulfill our expectations and honor our wishes by dissecting with purpose and respect.

LABORATORY RULES

1. Students are to abide by the "Code of Conduct in Gross Anatomy Laboratory" at all times. No eating, drinking or smoking at any time.
2. Absolutely **NO VISITORS ARE ALLOWED.** Only medical students, faculty, and staff are permitted in the laboratory.
3. No cell phones during regular laboratory hours.
4. Prospections are to be kept moist and wrapped up after use.
5. Wear clean clothing and footwear.
6. Behave professionally at all times.

THE BODY BEQUEST PROGRAM

1. All bodies utilized in our anatomy program are donated.
2. At the end of the course, these are buried at the BAMDC burial site.
3. Please thank ALLAH and remember them

EMBALMING

1. Bodies prepared for dissection are given a special treatment (embalming).
2. Upon receipt, the donor's body is given an identification number and bathed.
3. The right carotid artery is exposed and an injection tube inserted.
4. The entire body is perfused via the vasculature with embalming fluid.
5. 6-9 liters of fluid is injected under pressure.
6. This results in the body appearing somewhat distended; erectile tissues may be filled and the scrotum typically becomes ballooned.
7. A hole is placed in the calvaria to open the superior sagittal sinus to improve perfusion of the brain.

HEALTH CONCERNS

1. There is no extraordinary health risk associated with the dissection of embalmed cadavers.
2. The concentrated embalming fluid used contains formaldehyde and phenol and is toxic to bacteria, viral pathogens and most fungus. In addition, bodies are cured for at least three months prior to use.
3. If you sustain a laceration or puncture wound in gross laboratory simple treat it as you would any other cut. Wash out the wound, encourage bleeding, apply antiseptic and a band-aid. If it is more serious, consult your immediate teacher. First Aid kit is available on demand.
4. Formaldehyde levels encountered in the gross anatomy laboratory are far below the level agreed to pose a health hazard. If you have respiratory problems, see your demonstrator.
5. Some students have reported that wearing soft contact lenses in lab may result in eye irritation.
6. If any girl student is married and become she should consult her obstetrician. Until now, no known health risks to pregnant women or the embryo/fetus from exposure to formaldehyde or other components of embalming fluid, at the concentrations encountered during dissection, have been reported. However, to be on the safe side, you will still need to have permission from your obstetrician/physician to continue in the course.
7. If you have a health condition that you think might be a problem in lab, please see Doctor.

LABORATORY PROCEDURES & POLICIES

1. **Attire & rubber gloves:** Rubber gloves are not to be worn outside of the laboratory. Remove and dispose of prior to leaving the laboratory. Do not dispose of used gloves in the locker rooms; custodians will not deal with them. Wash your lab attire frequently.
2. **Cleanliness:** The regular custodial staff does not clean the laboratories. Therefore, it is your responsibility to keep the laboratories clean and orderly. Pick up and sweep up around your table at the end of each dissection.
3. **Scalpel Blades:** All used scalpel blades (sharps) are placed in the Sharps containers for disposal. Do not place them in the regular trash.

4. **Comparative Dissection:** You are encouraged to examine and review dissections other than your own. The more examples you see, the better. However, you are to dissect only the body assigned to you and no other. When you have finished reviewing someoneelse's dissection, put everything back in place. Make certain the dissection is moist and wrap the body properly. Follow the Golden Rule and treat the cadavers of other students as you would want them to treat yours.
5. **Guidance from the faculty:** The faculty is present during regular laboratory hours to instruct, advise and demonstrate, but not to do the dissection for you. The names of your demonstrators for the unit will be posted on the door of each laboratory. It is permissible to go to a table where a demonstrator is holding forth, but excessive shadowing of faculty Is discouraged because it can interfere with instruction.

CARE OF BODIES

1. At the end of each session, water down or wrap the dissection in moist paper towels and replace the skin flaps.
2. Cover with the plastic wrap and put the body cover in place. The body cover should conceal the entire body; no parts should be visible.
3. If you study a cadaver other than your own, be certain to wrap it up properly after use.
4. If there is a problem with preservation, please call it to the dissection hall attendant.

RADIOLOGICAL ANATOMY SESSIONS

1. The objective of the Radiological Anatomy Group Sessions is to familiarize you with the common radiological modalities encountered in the clinics (x-rays, MRI, CT, etc.),
2. It is to learn to relate anatomical knowledge gained by dissection to the interpretation of radiological images, and to introduce images as a tool to study anatomical relationships.
3. There would be Radiological Anatomy Sessions in dissection hall as posted in your class schedule. You are expected to know all the structures indicated.
4. You will see these, and similar images, on practical examinations.

5. Written and practical examinations may include questions regarding structures not included in the identification keys.

	GROSS ANATOMY	TOTAL HOURS = 15
TOPIC	**SPECIFIC LEARNING OUTCOMES**	**DISCIPLINE**
Introduction to General Anatomy	Briefly describe the applied branches of anatomy Describe the "Anatomical Position" Describe the anatomical planes of body. Describe the terms of relationship, commonly used in Anatomy. Describe the anatomical terms used specifically for Limbs. Describe the terms related to movements.	General Anatomy
Bones (Osteology)	Describe, identify, and exemplify the general morphological features of bones. Describe the developmental classification of bones. Describe the regional classification of bones. Describe the morphological classification of bones. Describe and exemplify Sesamoid, Pneumatic, Wormian and Heterotopic bones. Describe the general features of adult typical long bone. Describe the types of epiphyses Discuss the general concept of ossification (primary and secondary centers and rule of ossification) Describe the relationship of growing end of bones with the direction of nutrient foramen Describe the blood supply of various types of bones Describe the salient features of common types of fractures and basic concept of healing of fracture.	General Anatomy
Cartilage (Chondrology)	Describe the general features of cartilage and its importance in gross anatomy.	General Anatomy
	Describe the subtypes and gross features of Hyaline, elastic and fibro Cartilage. Differentiate the three types of cartilages	

Joints (Arthrology)	Describe and exemplify the structural classification of Joints (synovial, cartilaginous & fibrous) along with their sub-classification. Describe the components and characteristic features of a Synovial Joints. Describe the blood supply, innervation of Synovial Joints, cartilaginous joints, and fibrous joints. List the factors stabilizing a synovial joint. Define common joint injuries and diseases	General Anatomy
Integumentary System	Describe the structure and function of Skin on the basis of its two layers; Epidermis and Dermis Describe the structure of Hair as an appendage of skin. Describe the structure of Nail as an appendage of skin. Describe the structure of Sweat and Sebaceous Glands Describe the structure and function of Superficial Fascia Describe the structure, function, and modifications of Deep Fascia Describe important clinical correlates of skin (skin infections, sebaceous cyst, skin burns and skin grafting)	General Anatomy
Muscle Tissue (Myology)	Classify and describe Muscle Tissue based on Structure, Function and Development Describe Somatic and Visceral Muscles Describe and differentiate the Red and White Variety of Skeletal Muscles	General Anatomy
	Classify and describe the skeletal muscles based on architecture. Classify skeletal muscle based on action. Describe the parts of a skeletal muscle. Describe and differentiate the basic organization of innervation to skeletal, smooth, and cardiac muscle. Describe the structure of Synovial Bursae Comprehend the meaning of Hypertrophy, Hemiplegia, quadriplegia, paraplegia, hemiparesis	General Anatomy

Vascular System (Angiology)	Classify the types of blood circulation. Classify and exemplify various types of blood vessels. Describe and exemplify various types of anastomoses. Explain the importance of End Arteries Describe the general organization of Lymphatic Circulation Define the terms: Lymphoid Tissue, Tissue Fluid, Lymphatic, Capillaries, Lymph and Lymphatic Vessels Define the terms; Lymphangitis, Lymphadenitis.	General Anatomy
Nervous Tissue (Neurology)	Define neuron.	General Anatomy
	Describe the anatomical structure of a neuron. Classify neurons based on morphology with examples.	
	Classify neurons based on function. Describe the	General Anatomy
	components of the central nervous system.	
	Describe the components of the peripheral nervous	
	system.	
	Name the supporting cells (neuroglia) of the central	
	nervous system.	
	Describe the structure and functions of the neuroglia of	
	the central nervous system.	
	Enumerate the supporting cells (neuroglia) of the	
	peripheral nervous system. Describe the structure and functions of the neuroglia	
	of the peripheral nervous system. Enlist the cranial nerves I to XII	
	Describe the types of nerve fibers carried by and	
	distribution of the cranial nerves.	
	Describe the formation, types of modalities carried by,	
	and distribution of the spinal nerves.	
	Explain Dermatome (s)	
	Explain Myotome (s)	
	Describe the formation of Plexuses. Differentiate	
	between Somatic and Visceral nervous system.	
	Define Receptors	
	Describe the functions of receptors.	

	Classify sensory receptors based on modality (with location) Define Effectors Describe the functions of effectors. Describe ANS (Autonomic Nervous System) and differentiate between sympathetic and parasympathetic nervous system	
Imaging in Anatomy	Identify displacement of fracture segments of the bone Identify dislocation of joints	Integrate with Radiology
	EMBRYOLOGY & POST-NATAL DEVELOPMENT	**TOTAL HOURS = 25**
TOPIC	**SPECIFIC LEARNING OUTCOMES**	**DISCIPLINE**
Cell division and Chromosomal abnormalities	Define Chromosome Theory of inheritance Enlist different stages of Mitosis and Meiosis Compare and contrast Mitosis and Meiosis Enlist the numerical chromosomal anomalies Describe the anatomical basis for numerical chromosomal abnormalities. Describe the clinical presentation of numerical chromosomal abnormalities & justify them embryologically Describe the clinical presentation of structural chromosomal abnormalities and justify them embryologically. Describe the embryological basis for mosaicism Describe the embryological basis for teratoma Describe Concept of Gene Mutation. Enlist common diagnostic techniques for identifying genetic abnormalities.	Embryology
Gametogenesis Spermatogenesis	Describe the Process of spermatogenesis and spermiogenesis Describe the embryological basis for Abnormal gametes	Embryology
Gametogenesis Oogenesis	Describe the Prenatal and postnatal maturation of oocyte	Integrate with Gynecology
Gametogenesis Oogenesis	Describe the significance of arrested development of oocyte	Embryology
Gametogenesis	Compare and contrast oogenesis and spermatogenesis	

Female Reproductive Cycle	Describe the hormonal control of female reproductive cycles Enumerate and describe the steps of the ovarian cycle Describe the process of ovulation Describe the formation, function and fate of corpus luteum Define Mittelschmerz pain Define menstrual cycle Describe the phases of menstrual cycle	Integrate with Gynecology
Transportation of gametes	Describe the transportation of Oocyte	Embryology
Fertilization	Describe Capacitation & Acrosomal Reaction Define fertilization Describe the phases of fertilization Draw and label a diagram illustrating the phases of fertilization Enumerate and describe the results of fertilization	
Contraception	Define contraception Explain the mechanisms of following contraceptive techniques: 1. Barrier methods 2. Hormonal methods 3. Intrauterine device (IUD) 4. Emergency contraceptive pills (ECPs) 5. Male and female sterilization	Integrate with physiology
Infertility & assisted reproductive techniques	Describe the anatomical and physiological basis of male and female infertility Define assisted reproductive techniques Describe the mechanisms of In vitro fertilization (IVF) & embryo transfer Explain the correlation of multiple births with assisted reproductive techniques	Integrate with Gynecology
Cleavage, blastocyst formation	Describe the process of cleavage of embryo and blastocyst formation Describe the origin and uses of embryonic stem cells and the techniques of obtaining these cells from the embryo (reproductive cloning & therapeutic cloning) Explain the embryological basis of spontaneous abortion.	Embryology
	Compare and contrast the villi.	Integrate with Gynaecology
	Describe the process of Compaction. Describe the Formation of morula (division into inner and outer cell mass)	Embryology

Implantation Week 2 of Development	Describe the Uterus at the time of implantation (decidua reaction) Illustrate the concept of Implantation. Describe the Abnormal implantation/ extra uterine implantations. Define the Molar pregnancy. Describe the formation of amniotic cavity, embryonic disc, and umbilical vesicle Describe the formation of chorionic sac.	Embryology
Utero-Placental circulation	Describe the Establishment of uteroplacental circulation.	
Gastrulation	Describe the Formation & fate of primitive streak. Draw a concept map highlighting the sequence of events responsible for transformation of bilaminar germ disc into trilaminar germ disc. Describe the embryology behind sacrococcygeal teratoma and justify its clinical picture. Describe the molecular factors responsible for gastrulation.	Embryology Integrate with Gynaecology
Formation of notochord	Describe the Invagination and movement of prenotochordal cells Describe the Notochordal plate formation Describe the Neuroenteric canal formation	Embryology
	Describe the fate of the notochord Describe the Establishment of body axis Draw and label the fate map establishment Describe the Fate map establishment Describe the molecular basis for notochord formation	
	Describe the role of notochord as an inducer Describe the embryological basis for situs inversus, Sirenomelia, holoprosencephaly Describe the development of trophoblast and chorionic villi during 3rd week of development	

Derivatives of ectoderm	Describe the Formation of neural tube from neural plate. Justify embryologically the clinical picture seen in various neural tube defects Describe the process of Migration of neural crest cells Enlist the Derivatives of neural tube and describe the fate of each Enlist the Derivatives of neural crest cells Enlist the ectodermal derivatives Describe the molecular and genetic factors for the process of neurulation Describe important Neural tube defects	Embryology
Mesodermal derivatives	Describe the Differentiation of mesoderm into its constituting components Describe the Somite formation and its fate Describe the Estimation of age by somites Describe the formation of intra-embryonic coelom	Integrate with pediatrics
Early development of CVS	Describe the processes of vasculogenesis & angiogenesis Explain the features of primordial cardiovascular system Describe the anatomical justification for Capillary hemangiomas	Integrate with Cardiology
Folding of embryo	Describe the Cephalo-caudal folding	Integrate with Gynaecology
	Describe the Lateral folding	
Germ layer derivatives	Enlist the derivatives of germ layers Enlist and Describe the Derivatives of intermediate and lateral plate mesoderm Enlist & Describe the Derivatives of endoderm	Embryology
	Enlist & describe the derivatives of ectoderm	Integrate with Gynaecology/ Pediatrics
Control of the embryonic development	Describe the Regulation of embryonic development by HomeoBox genes	Embryology
Folding of Embryo Embryonic period	Enlist the characteristic features of the embryo during 2nd month Describe the criteria for estimating the developmental staging in human embryos Explain the estimation of gestational & embryonic age	

Fetal Period	Explain the measurement and characteristics of fetus/Key events during Embryonic Period. Describe the Overview of External appearance of fetus during fetal period. Enlist developmental horizons during fetal life event. Describe Viability of fetuses and low birth weight babies Explain the factors influencing fetal growth Describe the clinical problems encountered by babies born with IUGR (Intra Uterine Growth Restriction)	
Fetal Status	Tabulate the criteria for estimating fertilization age during the fetal period Describe the procedures for assessing fetal status Describe the clinical picture of IUGR & factors resulting in IUGR (Intra Uterine Growth Restriction) Define Pre-eclampsia	Integrate with Gynaecology
Placenta	List the fetal membranes	Integrate with Gynaecology
	Describe the macroscopic & microscopic features of Decidua Enlist the various parts of decidua Functionally correlate the parts of the decidua with its structure Describe the Changes in the trophoblast leading to the development of placenta Describe the Structure (macroscopic & microscopic) of placenta	
	Enlist & correlate the Functions of placenta with its structure Describe the Microscopic anatomy of Placental membrane Describe the Placental circulation (fetal & maternal) Embryologically justify the hemolytic disease of the neonate (Erythroblastosis fetalis) Describe the functions of placenta	

Fetal membranes	Describe the Formation & fate of Umbilical cord Describe the Cord abnormalities Justify embryologically the clinical features observed in Absence of umbilical artery Describe the formation and circulation of Amniotic fluid Describe the Procedure of diagnostic amniocentesis Explain the significance of amniotic fluid Describe the factors responsible for Polyhydramnios and oligohydramnios Describe the consequences of oligohydramnios and polyhydramnios Define Amniotic Bands Explain the formation and fate of umbilical vesicle (yolk sac) Define Physiological Umbilical Hernia	Integrate with Gynecology
Multiple pregnancies	Describe the development of Dizygotic twins Describe the development of Monozygotic twins Describe the fetal membranes in twin pregnancy Describe Fetus Papyraceous Explain the zygosity of the twins	Embryology
	Describe the characteristics of various types of conjoined monozygotic twins	
Prenatal diagnosis and fetal therapy	Define preterm Birth Describe parturition & three stages of Labor. Describe the Various methods of prenatal diagnosis Describe the Fetal therapy Describe Maternal serum Screening Corelate levels of Alpha feto protein levels and fetal anomalies Describe stem cell transplantation and gene therapy	
Molecular regulations and signaling pathways	Define morphogens, protein kinases, notch delta pathway, transcription factors, epigenetics	

Teratogenicity	Define teratology and causes of birth defects Define genomic imprinting Define human disorders associated with genetic mutations Describe birth defects caused by genetic factors: numerical and structural anomalies Define and enlist the teratogens Describe the role of following in causing teratogenicity in humans: 1. Drugs 2. Environmental agents 3. Chemicals & heavy metals 4. Infectious agents 5. Radiation 6. Hormones 7. Maternal diseases Describe the basis for male-mediated teratogens Describe prevention of birth defects	
	MICROSCOPIC ANATOMY (HISTOLOGY AND PATHOLOGY)	**TOTAL HOURS = 08**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Introduction to microscopy & Basic staining technique	Describe different types of microscopies Describe Staining methods and their significance	Basic technique in Histology
Cell membrane	Describe the electron microscopic structure and fluid mosaic model of plasma membrane Draw the fluid mosaic model of plasma membrane Describe the structure of glycocalyx coat and lipid raft and correlate it with function Describe different types of membrane proteins and their functions	Basic Histology
Cell organelles	Explain different modes of transport across the cell membrane	Integrate with Pathology

	List the membranous and non- membranous cellular organelles Describe the structure of the following cellular organelles and correlate with their function: 1. Ribosomes 2. Endoplasmic reticulum (rough & smooth) 3. Golgi apparatus 4. Lysosomes 5. Proteasomes 6. Mitochondria 7. Peroxisomes	
	Describe the structural components of cytoskeleton, and correlate them with their functions Explain the histological basis of immotile cilia syndrome	
	Describe the histological features of cytoplasmic inclusions	Integrate with Pathology
	Describe the structure of nuclear envelope and nuclear pores	Integrate with Physiology
Cell nucleus	Describe the structure of chromatin Describe the structure of chromosome Describe the structure of nucleolus	Histology
	Describe the structure and types of DNA (Deoxy Ribonucleic Acid) and RNA (Ribonucleic Acid) Describe the histological basis for apoptosis and necrosis	
	Describe structure of different types of cell junctions	Integrate with Pathology
	Describe the cell cycle & cell division Define important clinicopathological terms: Atresia, Hypertrophy, Atrophy, Hyperplasia, Metaplasia, Anaplasia, Neoplasia, Inflammation, Metastasis	

Epithelium	Describe the histological structure and function of basement membrane (light and electron) Draw and label a diagram illustrating the electron microscopic structure of basement membrane Describe the basal surface modifications of epithelia Describe the electron microscopic structure and functions of intercellular junctions (lateral surface modifications) and give their locations	Histology
	Describe the Biochemical composition of the basolateral modifications	
	Describe the electron microscopic structure & functions of the following apical cell surface specializations: 1. Microvilli 2. Stereocilia 3. Cilia	Integrate with Biochemistry
	Classify and exemplify the epithelia with their histological structure, locations and functions	Integrate with Pathology
	Describe the structure of exocrine glands Explain the mechanism of transport across the epithelia Describe the classification of exocrine glands on the basis of: 1. Shape of secretory portions and ducts 2. Mode of secretion 3. Type of secretion	Histology
Connective tissue	Describe the composition and list the constituents of connective tissue Classify the connective tissue with examples Describe the composition of ground substance of connective tissue Describe the composition, distribution, and function of glycosaminoglycans in connective tissue Describe connective tissue fibers, cells. Define Fibrosis	Histology
	Describe the structure, distribution, and functions of the cells of macrophage mononuclear phagocytic system	Integrate with Biochemistry/ Physiology

	Describe the role of macrophages in innate immunity & formation of foreign body Giant cell Describe the structure & functions of Mast cells. Role of Mast cells in immediate hypersensitivity reactions. Describe structure of Plasma cells and their role in antibody formation.	
	Describe the types of adipose tissue (white & brown), their histogenesis, locations and function	Histology
	Describe lipid storage and mobilization in and from adipocytes and compare the brown and white adipose tissue	Integrate with Pathology
	ANATOMY	**TOTAL HOURS = 03**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Osteology	Demonstrate the anatomical terms of position and movement, in particular on limbs.	Anatomy
Imaging and cross-sectional Anatomy Arthrology	Demonstrate various anatomical movements of body Identify various elevations and anatomical landmarks on bones. Identify and interpret normal radiographs of various body regions Identify and interpret joint dislocations and displaced fracture bone segments radiographically.	
	EMBRYOLOGY	**TOTAL HOURS = 05**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Embryology	Calculate fertilization age, gestational age, embryonic/fetal age and expected date of delivery.	Anatomy
	On models, charts, aborted embryos and fetal specimens, identify the: Events of embryonic period, i.e., cleavage, morula and blastula formation, yolk sac, amniotic cavity, connecting stalk,	

	Gastrulation (notochord & primitive streak, three germ layers and their parts/derivatives), angiogenesis, neurulation, somites and embryonic age determination based on it, chorionic villi (primary, secondary & tertiary), developmental defects (sacrococcygeal teratoma, neural tube defects) Placenta and it's positional & Implatational variations, umbilical cord and its contents Fetal features during fetal period. Determine age of fetus based on these features.	
	Describe the USG (Ultrasonography) report for the: Fetal features, fetal age estimation, placental attachment with variations, fetal membranes and multiple pregnancies	
	Gastrulation (notochord & primitive streak, three germ layers and their parts/derivatives), angiogenesis, neurulation, somites and embryonic age determination	
	based on it, chorionic villi (primary, secondary & tertiary), developmental defects (sacrococcygeal teratoma, neural tube defects) fetal features during fetal period. Determine age of fetus based on these features.	
	Describe the USG (Ultrasonography) report for the: Fetal features, fetal age estimation, placental attachment with variations, fetal membranes and multiple pregnancies	
	HISTOLOGY	**TOTAL HOURS = 14**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Staining techniques	Describe different types of staining techniques and their significance with special emphasis on H&E (Hematoxylin and Eosin) staining	Microscopic Anatomy
Microscope	Enlist important features of different parts of light microscope	
Cell shape	Identify and draw & label different cell shapes under the microscope	

Epithelium	Identify under light microscope and Draw & Label the following types of epithelia: 1. Simple squamous 2. Simple cuboidal 3. Simple columnar (ciliated & non-ciliated) 4. Pseudostratified columnar (ciliated & non- ciliated) 5. Stratified squamous (keratinized & non keratinized) 6. Stratified cuboidal 7. Stratified columnar 8. Transitional	
Epithelium	Identify under light microscope and Draw & Label serous & mucous secreting glands under light microscope	Microscopic Anatomy
Connective tissue	Identify under light microscope and Draw & Label the various types of connective tissue	
	MEDICAL PHYSIOLOGY	**TOTAL HOURS = 40**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Cell Biology	Define Homeostasis Explain control system of body by giving examples Differentiate between Extracellular and Intracellular Fluids Explain the positive and negative feedback mechanisms with examples Explain the significance of feed forward/ adaptive control/delayed negative feedback mechanisms Explain the structure of cell membrane Enlist the types of cell membrane proteins Enumerate the functions of membrane proteins Define and enumerate the functions of cell Glycocalyx	Medical Physiology

	Enlist membranous and non-membranous organelles Enlist the self-replicative organelles Differentiate between the functions of smooth and rough endoplasmic reticulum Explain the functions of Golgi apparatus Enlist the enzymes of lysosomes Explain the functions of lysosomes Enlist the enzymes of peroxisomes Explain the functions of peroxisomes Enumerate the components and functions of cytoskeleton Define and enlist types of endocytosis Explain the mechanism of pinocytosis Classify different transport mechanisms Compare the composition of Na (Sodium), K (Potassium) and Cl (Chloride) in extracellular and intracellular fluid	
	Define and enlist different types of diffusion Explain the process of facilitated diffusion with the aid of diagram Define and classify different types of active transport Describe primary and secondary active transport with examples Explain voltage and ligand gated channels with examples Name Na, K channel Blockers. Discuss functions and significance of Na/K ATPase pump.	
Blood	Enumerate the functions of blood Explain the composition of blood Enumerate the plasma proteins	Medical Physiology
	Discuss functions of plasma proteins Describe the pathophysiology of edema	
Red Blood Cells	Discuss the characteristics of red blood cells Explain different types of Bone marrows Enumerate the different sites of erythropoiesis at different ages Explain the stages of erythropoiesis Enumerate factors that regulate erythropoiesis Discuss the site and role of erythropoietin in red blood cell production Explain the significance of vitamin B12 and folic acid in maturation of red blood cell	
Hemoglobin	Enumerate the types of normal hemoglobin in different ages of life Explain the role of Iron in Hemoglobin formation. Define blood indices, give their normal values & enumerate the conditions in which these values are disturbed Enlist the abnormal types of hemoglobin	Medical Physiology

White Blood Cells	Enumerate the types of white blood cells Describe the characteristics and functions of Neutrophils Explain the process of defense against invading agent by neutrophils Define leukocytosis and leukopenia Explain the effects of leukemia on body Explain the process of defense against invading agent by macrophages Discuss different lines of defense during inflammation	Medical Physiology
	Explain the functions of neutrophils and macrophages in spread of inflammation (walling off effect) Define the Reticuloendothelial system Enlist the different components of Reticuloendothelial system Explain the characteristics and functions of basophils Explain the characteristics and functions of eosinophils and enlist conditions in which these cells are raised.	
Blood Types	Enumerate different blood group types. Explain the basis of ABO and Rh blood system Explain the Landsteiner law	Medical Physiology
Autonomic nervous system	Discuss Components of ANS (Autonomic nervous system) Explain the physiological anatomy of sympathetic and parasympathetic nervous system Describe the types of adrenergic and cholinergic receptors and their functions Explain the effects of sympathetic and parasympathetic on various organs/ system of body	Medical Physiology Also integrate with Anatomy part of ANS
	PHYSIOLOGY	**TOTAL HOURS = 12**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Consent	Explain laboratory/clinical procedure to the subject. Obtain verbal consent from subject before starting a procedure. Reassure the subject after the procedure.	Medical Physiology
RBCs (Red Blood Cells)	Determine Erythrocyte Sedimentation Rate and packed cell volume	
Blood Group	Determination of blood group	
WBCs (White Blood Cells)	Interpret Total Leucocyte Count, Differential Leucocyte Count (normal & abnormal) in a CBC (Complete Blood Count) report generated by Automated Cell Counter Identify various types of WBCs in a prepared DLC (Differential Leukocyte Count)	

	MEDICAL BIOCHEMISTRY	TOTAL HOURS = 36
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Structure of cell	Explain the concept of organization of cells to tissue, tissues to organ, organs to system. Differentiate between the eukaryotic and prokaryotic cells.	Biochemistry Cell Biology
Cell Membrane	Describe the composition and structure of cell on biochemical basis and justify it as fluid mosaic model. Describe the structure and function of cell membrane with particular reference to the role of 1. Lipids 2. Carbohydrates 3. Proteins Explain why the cell membrane is called fluid mosaic model	
Signal transduction	Discuss the various ways of cell-to-cell communication and to the environment.	
	Describe cell to cell communications. Cell signaling pathways (only G protein signaling I e. Gs, Gi and Gq) Describe cell to cell adhesion.	
Subcellular organelles	Explain the biochemical markers and importance of subcellular organelles and their inherited disorders especially: 1. I cell disease 2. Refsum disease 3. Parkinsonism 4. Progeria	
Chemistry of purine and pyrimidines	Describe the chemistry of purines and pyrimidines and their linkage in nucleic acid synthesis.	
DNA (Deoxy Ribonucleic Acid)	Discuss the organization of DNA with special reference to Watson and crick model, composition, structure, role of Pairing Describe the structural forms of DNA	
RNA (Ribonucleic Acid)	Discuss the structure of different types of RNAs with special reference to composition, linkage, functions of RNA, micro-RNA Illustrate the structure and functions of various types of RNAs Describe the functions of various small RNAs present in cell	Biochemistry Cell Biology

Nucleotides	Explain the structure and nomenclature of nucleotides, biomedical importance of natural and synthetic analogues	Biochemistry Cell Biology
Chromosome	Explain the higher organization of DNA. Difference between DNA, chromatid and chromosome	
Enzymes	Describe enzymes with reference to: 1. Active sites 2. Specificity 3. Catalytic efficiency 4. Cofactor 5. Coenzyme 6. Holoenzyme	
	7. Apoenzyme 8. Prosthetic group 9. Zymogens 10. Location	
	Classify enzymes according to the reaction they catalyze and their nomenclature	
	Explain the mechanism of enzyme action from reactants to products (catalysis).	
	Discuss the effect of various factors on enzymatic activity: 1. Substrate concentration 2. Temperature 3. PH 4. Enzyme concentration	
	Explain the regulation of enzymatic activity (Michaelis Menten and Line weaver Burk's equation). Discuss inhibitors of enzymatic activity (with special reference to Km/V max) 1. Competitive 2. Non competitive 3. uncompetitive	Biochemistry Cell Biology
	Explain the application of enzyme in clinical diagnosis and therapeutic use	
Amino acids	Classify amino acids based on polarity, nutritional importance and glucogenic/Ketogenic properties	

	Explain the structure, physical, chemical properties of amino acids and their biomedical importance	
Protein	Classify proteins on the basis of functions, solubility and physicochemical properties and their biomedical importance.	
	Explain the structural levels of proteins 1. Differentiate between alpha helix and beta pleated protein structures 2. Identify bonding at different levels of proteins	
	Describe the role of chaperons in protein folding 1. Interpret disorders related to protein misfolding on basis of given data 2. Describe the biochemical basis of Alzheimer's disease/ prion disease	Biochemistry Cell Biology
Plasma proteins	Classify and explain the bio-chemical role of each class of plasma proteins	
Immunoglobulins	Explain the structure and biochemical role of immunoglobulins 1. Describe the production, structure and functions of B cells, plasma cells, and antibodies (IgA, IgD, IgE, IgG, and IgM). 2. Discuss the functions of the cytokines (Interleukins (ILs), Tumor Necrosis Factor (TNFs), IFs, Platelet derived growth factor (PDGF), and Platelet activating factor (PAF)). 3. Interpret multiple myeloma on basis of given data	
	BIOCHEMISTRY	**TOTAL HOURS = 09**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**
Lab hazards	Demonstrate the step taken to prevent or rectify the Laboratory Hazards	Biochemistry
cell	Identify the structure of cells under microscope	
Cell organelles	Identify the methods of isolation of cell organelles'	
Equipment	Identify the different parts of equipment i.e., centrifuge, Microlab, Electrophoresis, Hot Oven, water bath	
Chromatography Solutions	Detection of amino acids by paper chromatography	
	Prepare different types of solution Molar, Molal, Normal and %	
	PATHOLOGY	**TOTAL HOURS = 6+6=12**
TOPIC	**SPECIFIC LEARNING OBJECTIVES**	**DISCIPLINE**

Cell Injury	Discuss the significance of pathology. Discuss the causes of cell injury. Identify the types of cell injury. Describe the mechanism of cell injury. Identify the types of cell death. Define necrosis and apoptosis. Describe different types of necrosis. Compare apoptosis with necrosis. Identify different types and mechanism of cellular adaptations to stress Discuss the mechanism and types of intracellular accumulations and pathological calcifications	General Pathology
Introduction to Microorganisms	Describe the basic structure of bacteria and virus. Enlist medically important microbes causing infectious diseases. Differentiate cell walls of gram positive and gram- negative bacteria. Compare the structure of bacterial cell and virus Discuss the growth curve of bacteria and virus. Enlist steps of viral replication Enlist stages of infectious diseases Enlist stages of bacterial pathogenesis Discuss the determinants of bacterial pathogenesis	General Microbiology
Sterilization & Disinfection	Define sterilization and disinfection. Describe the principles of sterilization and disinfection. Describe clinical uses of common disinfectants and their mode of sterilization Discuss physical and chemical agents of sterilization	
	SPECIFIC LEARNING OBJECTIVES	**TOTAL HOURS = 04**
TOPIC		**DISCIPLINE**
Absorption, Distribution, Metabolism and Excretion of drugs	Definitions of Pharmacology, drug, pro-drug, placebo, active principles, sources of drugs; Brief outline of Absorption, Distribution, Metabolism and Excretion	General Pharmacology
Basic terminologies of Pharmacology	Definitions of receptor, agonist, partial agonist, inverse agonist, antagonist and types of receptors and second messengers; Diagrammatic concept of signaling mechanisms	General Pharmacology
Autonomic System	Pharmacological aspects of Autonomic Receptors (types of autonomic receptors, important sites and actions)	
	PATHOLOGY	**TOTAL HOURS = 02**

TOPIC	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE
Cell Injury	Identify the necrosis and calcification along with their types	Pathology
	Identify the cellular adaptations and pigmentations with their salient pathological features.	
	SPECIFIC LEARNING OBJECTIVES	**TOTAL HOURS = 08**
TOPIC		**DISCIPLINE**
Concept of Health	Describe the changing concepts and new philosophy of health Explain responsibility for health	Community Medicine and Public Health
Positive Health Dimensions, Health Determinants	Explain dimensions and determinants of health and their role in achieving positive health Discuss concept of health and wellbeing Describe the Physical quality of Life Index & Human Development Index	
Health indicators	Describe the importance of health indicators Classify health indicators Calculate Morbidity and Mortality Describe Disability indicators Compare indicators among countries	
Disease causation	Conceptualize disease causation and natural history of disease Explain Germ theory & multifactorial causation Describe Epidemiological Triad Discuss Web of disease causation Describe Gradient of infection	Community Medicine and Public Health
Disease Prevention	Describe principles of prevention and control on prevalent diseases Explain difference between elimination and eradication Describe disease surveillance, types and cycle Explain Primary, secondary, & tertiary prevention Describe five levels of interventions	Community Medicine and Public Health
	SPECIFIC LEARNING OBJECTIVES	**TOTAL HOURS = 08**
TOPIC		**DISCIPLINE**
Biological Basis of Behavior	Identify the Biological Basis of human behavior and discuss social behavior Describe processes such as neurobiology of memory, emotions, sleep, learning, motivation, sex, arousal, reward and punishment	Behavioral Sciences

Psychological Disorders	Identify the burden of mental illness on the person, family and society Describe Intellectual disability, Mental Disorders and Personality Disorders	
Psychology and Disease	Identify the role of psychosocial factors in various illnesses Describe psychosocial aspects of various system diseases such as Cardio-vascular system (CVS), Central Nervous System (CNS), Gastro Intestinal Tract (GIT), Respiration, renal, endocrine and Cancer	
Behavioral Factors & Pharmacological Treatment	Identify the behavioral factors associated with pharmacological treatment of diseases Discuss Health belief model, treatment compliance and its psychosocial factors, social factors in drugs prescription and drug resistance	
Palliative Care	Identify the rehabilitation work for patients on dialysis and any kind of physical disability	Behavioral Sciences
	Discuss the care requirements in chronic debilitating conditions like Diabetes, Multi-infarcts Dementia, chronic renal disease, limb amputation	
Stress	Identify the various physiological effects of stress Explain ANS response to stress, Describe Behavioural manifestations of stress, Stress related multiple sclerosis and autoimmune diseases	
	SPECIFIC LEARNING OBJECTIVES	**TOTAL HOURS = 01**
TOPIC		**DISCIPLINE**
Process of Aging	Discuss telomeres and telomerase and their clinical significance in aging.	Geriatrics Integrate with Biochemistry