AYUB MEDICAL COLLEGE ABBOTTABAD

DEPARTMENT OF MEDICAL EDUCATION

BLOOD & IMMUNOLOGY I MODULE

1ST YEAR MBBS

BLOCK: A- PAPER A

DURATION: 03WEEKS

STUDENT NAME

_____

DISCLAIMER

- Developing a study guide is a dynamic process and undergoes iteration according to the needs and priorities.
- This study guide is subjected to the change and modification over the whole academic year.
- However, students are advised to use it as a guide for respective modules.
- It is to declare that the learning objectives (general and specific) and the distribution of assessment tools (both theory and practical) are obtained from Khyber Medical University, Peshawar. These can be obtained from: https://kmu.edu.pk/examination/guidelines
- The time tables are for guiding purpose. It is to advise that final timetables are always displayed over the notice boards of each lecture hall.
- Students are encouraged to provide feedback via coordinator.

Contents

1 Module Committee: 1
2 What Is A Study Guide? 2
3 Recommended List Of Icons 3
4 Table Of Specification 5
5 Organization of Module 22
5.1 Introduction & Rationale 22
5.1.1 INTRODUCTION TO BLOCK –A 22
5.1.2 INTRODUCTION TO BLOOD MODULE 22
6 LEARNING OBJECTIVES 23
6.1 General Learning Outcomes 23
6.1.1 KNOWLEDGE 23
6.1.2 SKILLS 23
6.1.3 ATTITUDE AND BEHAVIOUR: 23
7 SPECIFIC LEARNING OUTCOMES 25
8 Examination and Methods of Assessment: 37
8.1 Instruction: 37
EXAMINATION RULES & REGULATIONS 37
8.2 Assessment: 37
8.2.1 INTERNAL: total 10% (24 marks) 37
8.2.2 UNIVERSITY EXAM: 37
9 Learning Opportunities and Resources 40
9.1 Instruction 40
9.2 Books: 40
9.3 Other learning sources: 41
10 Timetables 22
11 For inquiry and troubleshooting 27
12 Course Feedback Form 28

1 Module Committee:

s.no	Name	Department	Role
1.	Prof. Dr. Umar Farooq	CEO & Dean	
2.	Prof. Dr. Irfan U. Khattak	DME	Director
BLOOD MODULE			
3.	Dr.Ayesha Awan	Biochemistry	Block A coordinator
4	Dr.Sofia Shoukat	Biochemistry	Blood module coordinator
5.	Dr. Rizwana	Anatomy	Member
6.	Dr.Maria	Physiology	Member
7.	Dr. Ayesha Saleem Jadoon	Prime	Member

2 What Is A Study Guide?

It is an aid to Inform students how student learning program of the module has been organized, to help students organize and manage their studies throughout the module and guide students on assessment methods, rules and regulations.

The study guide:

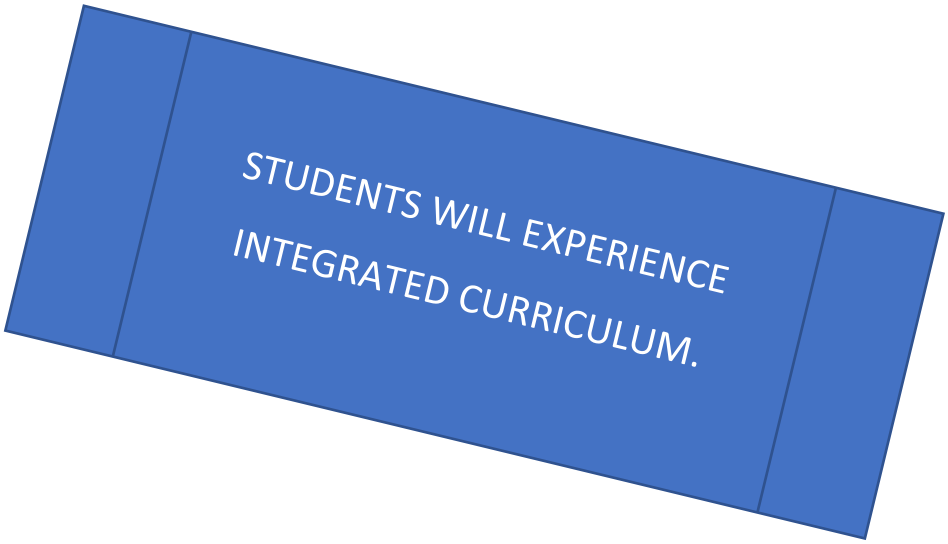
- Communicates information on organization and management of the module.
- This will help the student to contact the right person in case of any difficulty.
- Defines the objectives which are expected to be achieved at the end of the module.
- Identifies the learning strategies such as lectures, small group teachings.

Module objectives.

- Provides a list of learning resources such as books, computer-assisted learning programs, weblinks, and journals, for students to consult in order to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's performance.

Achievement of objectives.

- Focuses on information pertaining to examination policy, rules and regulations.



3 Recommended List Of Icons

Introduction To Case

For Objectives

Critical Questions

Assessment

Resource Material

4 Table Of Specification

Subject	LGD No. of Hours	SDG No. of Hours	Percentage distribution (Hours allocated in TT/total hours*100)
Core Subjects:			
Gross Anatomy	3	20 +6	43.33%
Histology	5		
Embryology	5	-	
Physiology	15	6	23.33%
Biochemistry	12	6	20%
Additional Subjects:			
Pathology	2	-	2.22%
Pharmacology	1	-	1.11%
Forensic medicine	2	-	2.22%
Community medicine	3	-	3.33%
PRIME		-	
Psychaitary	1	-	1.11%
Community Medicine	3		3.33%
Surgery	0		
Total	**90**		99.98%

5 Organization of Module

5.1 Introduction & Rationale

5.1.1 INTRODUCTION TO BLOCK –A

The Blood module is a 03 weeks module that aims to provide the basic understanding of hematopoiesis and hemostasis at the molecular level. It will also outline the basic pathological processes in the development of Anemias and will deal with the basic pharmacological aspects of Blood related disorder and their presence in the community. The module will give the 1st year medical students, an opportunity to know the presentations and principles of management of common hematological, immunological, inflammatory and neoplastic disorders.

The contents of the module will be taught in lectures, SGDs (Small Group Discussions), Practicals and DSL (Directed Self Learning). Blood module consists of the following themes:

5.1.2 INTRODUCTION TO BLOOD MODULE

The Blood module is a 03 weeks module that aims to provide the basic understanding of hematopoiesis and hemostasis at the molecular level. It will also outline the basic pathological processes in the development of Anemias and will deal with the basic pharmacological aspects of Blood related disorder and their presence in the community. The module will give the 1st year medical students, an opportunity to know the presentations and principles of management of common hematological, immunological, inflammatory and neoplastic disorders.

The contents of the module will be taught in lectures, SGDs (Small Group Discussions), Practicals and DSL (Directed Self Learning). Blood module consists of the following themes:

THEMES FOR BLOOD MODULE		
TOTAL DURATION – 03 WEEKS		
S.NO	**THEME**	**DURATION**
1.	Pallor and swelling	01 week
2.	Fever (infection and Imunity	01 week
3.	Excessive bleeding and transfusion	01 eek

6 LEARNING OBJECTIVES

6.1 General Learning Outcomes

By the end of Blood module the students would be able to;

6.1.1 KNOWLEDGE

By the end of Blood module, First year MBBS students shall be able:

1. Identify and describe the various cellular and non-cellular components of blood in relation to its Anatomy, Physiology & Biochemistry
2. Describe structure, synthesis and degradation of Hemoglobin
3. Describe the regulatory mechanisms of normal hemostasis and coagulation
4. Describe the conditions associated with dysfunction of cellular and non-cellular components of blood
5. Describe the basic characteristics of immune system.
6. Discuss the structure, functions and biochemical aspects of the Lympho-reticular system.
7. Explain the principles and clinical significance of ABO/RH blood grouping system
8. Explain the pathophysiology of various bleeding disorders
9. Identify the role of pharmacology in anemia and bleeding disorders.

6.1.2 SKILLS

By the end of BLOOD Module, the student should be able to:

1. Carry out practical work as instructed in an organized and safe manner
2. Make and record observations accurately.
3. Identify slide of Lymph node, thymus, tonsils and spleen under microscope
4. Identify slide of Gut associated lymphoid tissue
5. Determine percentage of formed blood elements.
6. Identify RBC and should be able to do its counting on counting chamber and to know normal values and also classify Anemia morphologically.
7. Determine the Hemoglobin with the apparatus and have knowledge of normal and abnormal value.
8. Identify WBC morphology and its different types, should be able to count them on counting chamber and to know the normal values. Diagnostic importance of each WBC.

6.1.3 ATTITUDE AND BEHAVIOUR:

By the end of BLOOD Module the student shall gain the ability and carry responsibility to:

1. Demonstrate ability to give and receive feedback, respect for self and peers.
2. Demonstrate empathy and care to patients.
3. Develop respect for the individuality and values of others - (including having respect for oneself) patients, colleagues and other health professionals
4. Organize& distribute tasks

5. Exchange opinion & knowledge
6. Develop communication skills and etiquette with sense of responsibility.
7. To equip themselves for teamwork
8. Regularly attend the classes and demonstrate good lab practices.

7 SPECIFIC LEARNING OUTCOMES

THEME-I PALLOR AND SWELLING			
	ANATOMY		
S. No	**TOPIC**	**LEARNING OUTCOMES**	**MIT /Hours**
1.	**Introduction to hematopoietic system**	1. Describe various components of hematopoietic system including their locations and their functions 2. Describe surface anatomy and applied anatomy of main organs ofhematopoietic system 3. Define and classify lymphoid organs and lymphoid tissues	Dissection /11hrs Los are continued from foundation module
	PHYSIOLOGY		
2.	**Introduction to Blood**	4. Describe the composition and functions of blood 5. Define Hematocrit 6. Enlist the components of plasma 7. Explain the difference between serium and plasma	LGD/1hr
3.	**Red Blood Cells**	8. Describe the structure,function, life Serum span and normal count of Red Blood Cells 9. Define Haemopoiesis 10. Classify haematopoitic stem cells 11. Summarize the erythropoiesis sites during pre natal and post natal periods	LGD/Los combined
4.	**Red Blood Cells Genesis Erythropoiesis**	12. Illustrate the stages of RBC development from pluripotent hematopoietic stem cells to a mature RBC. 13. Describe the erythropoiesis and factors regulating erythropoiesis 14. Describe the role of Vitamin B12 and Folic acid in RBC maturation.	LGD/1hr

		15. Describe the effects of deficiency of Vitamin B12 and Folic acid on RBC maturation	
5.	**Erythropoietin**	16. Describe source, control regulation and functions of Erythropoietin 17. Explain the role of Erythropoietin in RBC production. 18. Describe the effects of high altitude and exercise on RBC production.	LGD/Los combined above
6.	**Anemia**	19. Define and describe the different types of anemia 20. Define hemolysis 21. Describe the various red cell indices 22. Interpret the diagnosis of anemia by using red cell indices 23. Describe the effects of anemia on functions of circulatory system / human body	LGD/1hr
7.	**Polycythemia**	24. Define and classify polycythemia 25. Differentiate between primary and secondary Polycythemia	LGD/combined Los

BIOCHEMISTRY			
8.	**Introduction of Porphyrins**	26. Define Porphyrins 27. Describe Chemistry of Porphyrins 28. Enlist the types, metabolic causes and clinical presentation of different types of Porphyrias.	LGD/1hr
9.	**Iron metabolism**	29. Describe the iron metabolism	LGD/2hrs
10.	**Introduction to heme synthesis and degradation**	30. Define heme and Describe its structure and functions 31. Describe the biochemical features of the hemoglobin molecules 32. Describe Heme Synthesis on cellular and molecular level 33. Describe Heme Degradation	LGD/2hr

		34. Describe the Regulation of Heme Synthesis. 35. Describe the concept of Oxygen binding with hemoglobin 36. Describe the normal picture of blood chemistry.	
11.	**Hemoglobinopathies**	37. Define Hemoglobinopathies and enlist the variants of hemoglobin 38. Describe causesof Hemoglobinopathies 39. Describe two major categories of hemoglobinopathies 40. Describe the amino acid substitution in sickle cell disease. 41. Define and Classify thalassemias. 42. Explain the genetic defects in α and β thalassemias. 43. Enlist the clinical features of α and β thalassemias	LGD/2hr
12.	**Water soluble vitamins**	44. Discuss water soluble vitamins includingVitamin B complex, 45. Vitamin C and Folic Acid	LGD/4hrs

PATHOLOGY			
13.	**Anemia's of diminished eryt hropoiesis**	46. Define anemia 47. List the factors for regulation of erythropoiesis 48. Enlist the types of anemia	LGD/1hr
14.	**Hemolytic anemia's**	49. Define hemolytic anemia. 50. Enlist types of hemolytic anemia.	LGD/1hr
PHARMACOLOGY			

15.	**Drug treatment of anemia's**	51. Enlist the drugs used in the treatment of iron deficiency & Megaloblastic anemia 52. Describe the pharmacological basis/ role of iron in iron deficiency anemia (hypochromic normocy tic anemia) 53. Describe the pharmacological basis/ role of vit B12 and folic acid in megaloblastic anemia 54. Describe the role of Erythropoietin in the treatment of Anemia(normocytic normochromic anemia)	LGD/1hr combined with next Los

COMMUNITY MEDICINE			
16.	**Epidemiology of blood borne diseases**	55. Describe Epidemiology of Iron Deficiency Anemia 56. Describe prevention of different types of anemia's in community	LGD/1hr

LAB WORK			
ANATOMY PRACTICAL (HISTOLOGY)			
17.	**Histology**	57. Identify and describe the microscopic anatomy of lymph node, thymus, bone marrow and spleen under microscope . 58. Compare the histological features of lymph node, thymus and spleen.	Practical/ 2hours NOTE:previous Los will be covered in Blood module.
		PHYSIOLOGY PRACTICAL	
18.	**Hemoglobin Determination**	59. Assist in phlebotomy while practicing aseptic procedure. 60. Determine the Hemoglobin in given sample. Estimation of Hb by Sahil,smethod. 61. Determination of packed Cell Volume.	Practical/ 2hrs/merged with foundation module.

19.	Blood cells	62. Identify and describe various blood cells under microscope.	Practical/combined

THEME-II FEVER(INFECTION &IMMUNOLOGY)			
SNO.	**Topic**	**LEARNING OUTCOMES**	**MIT/Hours**
	ANATOMY		
21.	**Gross anatomy of hematopoietic system**	64. Locate, identify and describe the main gross external features of spleen, lymph node, thymus and tonsils 65. Describe neurovascular supply of the mentioned structures 66. Outline the surface anatomy of main lymph nodes, spleen, thymus and tonsils 67. Enlist the causes of splenic injuries	Dissection/ 12hrs Los are continued from foundation module
22.	**Histology of lymphoid tissues**	68. Describe the overview of lymphatic tissue including MALT 69. Identify and describe the histological features and functions of Lymph node 70. Identify and describe the histological features and functions of Thymus 71. Identify the locations of tonsils and describe the histological features and functions of Tonsils 72. Describe the histological features and functions of spleen	LGD/5hrs
20.	RBC Count	63. Determine the res blood cell (RBC) count in the given sample and calculate RBC indices.	Practical/ Combined
23.	**Embryology/ Developmental Anatomy of lymphoid tissue**	73. Describe the development of lymphoid organs including lymph nodes, tonsils, thymus and spleen	LGD/5hr Combined with Foundation module

	PHYSIOLOGY		
24	**White Blood Cells**	74. Classify white blood cells 75. Describe the structure, function, life span and normal countof White Blood Cells 76. Describe the stages of differentiation of white blood cells (leukopoiesis) 77. Describe the characteristics of WBCs (phagocytosis / chemotaxis, diapedesis)	LGD/1hr

25.	**Reticulo-endothelial (**Monocyte-Macrophage**) system**	78. Describe the components of reticulo endothelial system(monocyte mac rophage system) 79. Describe the role of monocyte macrophage system in immunity 80. Explain the role of neutrophils, macrophages, basophils, eosinophils and monocytes in providing immunity against infections (immune system)	LGD/combined above
26.	**Inflammation**	81. Define inflammation 82. Describe characteristics of inflammation (hallmark of inflammation) 83. Describe the causes, sequence of events and cardinal signs of inflammation	LGD/1hr
27.	**Abnormal leukocyte counts/ Leukemia**	84. Define Leukopenia and Leukocytosis and Leukemia	LGD/Combined above
28.	**Introduction to immun**	85. Define and classify immunity 86. Define antigen 87. Define pathogen 88. Enlist the tissues thatcontribute to immunity and explain their function 89. Describe the functions of immune system 90. Describe the structure and function of lymphatic system	LGD/1hr

29.	**Immune system**	91. Enlist the three lines of defenses and outline their properties 92. Describe the characteristics origin and functions of cells of immune system 93. Describe the types of immunity 94. Enlist the innate defenses 95. List the substances and cells that participate in adaptive immunity 96. Compare the characteristics of innate and acquired immunity 97. Compare the active and passive immunity mechanism	LGD/ 1hr
30.	**Immune response**	98. Differentiate between primary and secondary immune response 99. Describe the roles of cytokines, chemokines, andcolony stim ulating factors in the immune response	LGD/1h r
31.	**Humoral and cell mediated immu nity**	100. Describe the role of T and B lymphocytes in immunity 101. Describe the role of B lymphocytes in humoral immunity 102. Describe cell mediated and humoral immunity 103. Explain how helper T cells regulate the immune system 104. Explain the function of cytotoxic T cells 105. Describe the role of helper T cells 106. Differentiate between humoral and cell mediated immunity	LGD/co mbined above
32.	**Complement system**	107. Describe the complement system 108. Explain how the complement system elicits the inflammatory response, lyses foreign cells, and increases phagocytosis 109. Describe the two pathways that activate the complement system 110. compare Classic and alternate pathways ,pathways of complement activation	**LGD/1h r**

33.	**Immunity: extremes of ages**	111. Compare the active and passive immunity 112. Explain the transfer of passive immunity from mother to fetus and from mother to infant during breastfeeding 113. Describe changes in immune response that occurs with aging	LGD/1hr
34.	**Allergy & Hypersensitivity**	114. Describe the pathophysiology of allergy and hypersensitivity 115. Define and classify the hypersensitivity reaction 116. Compare the immediate And delayed hypersensitivity reactions 117. List the diseases associated with hypersensitivety reactions	LGD/Combined above

BIOCHEMISTRY			
35.	**Immunoglobulin's / Antibodies**	118. Define Immunoglobuln's 119. Describe Types of immunoglobulin's 120. Describe Structure of Immunoglobulin's 121. Describe the mechanism of action of antibodies 122. Explain biochemical role of each immunoglobin in immunity	LGD/1hrs

COMMUNIUTY MEDICINE			
36.	**Vaccinology**	123. Define vaccine and immunization 124. Explain the expanded program of immunization (EPI) in Pakistan	LGD/1hr

LAB WORK

PHYSIOLOGY PRACTICAL			
37	**TLC determination**	125. Determine the total leukocyte count (TLC) in the given sample	Practical/ 2hrs
38.	**DLC determination**	126. Determine the differential leukocyte count (DLC) in the given sample	Practical/ Combined

THEME –III Excessive Bleeding			
PHYSIOLOGY			
SNO	**Topic**	**Learning Outcome**	**MIT/ Hours**
39.	**Introduction to hemostasis**	127. Describe the structure, function, life span and normal count of Platelets. 128. Define hemostasis 129. Describe the role of platelets in hemostasis 130. Outline the sequence of processes involved in hemostasis.	LGD/1hr
40.	**Blood Coagulation**	131. Enlist the clotting factors 132. Explain the role of calcium in coagulation 133. Explain how clotting is prevented in the normal vascular system 134. Outline the sequence of processes during blood coagulation 135. Describe with the help of a flow diagram (or draw) intrinsic pathway of coagulation cascade 136. Describe with the help of a flow diagram (or draw) extrinsic pathway of coagulation cascade 137. Explain how the mechanism of clot dissolution.	LGD/1hr
41.	**Bleeding disorders**	138. describe the role of Vit K in clotting 139. Describe the following bleeding disorders i. Vitamin K deficiency	LGD/1hr

		ii. Thrombocytopenia iii. Hemophilia 140. Define Von Willebrand disease	
42.	**Thrombotic disorders**	141. Describe the effects of low platelet count on Hemostasis 142. Define thrombus/thrombi 143. Define emboli/embolus 144. Enlist the causes of thromboembolic conditions 145. Describe Femoral venous thrombosis and pulmonary embolism	LGD/Los combined above

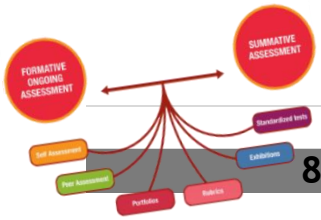
PHARMACOLOGY			
43.	**Coagulation modifying drug**	146. Identify the site of action of following drugs in coagulation cascade · Aspirin, · Heparin, · Tranexamic acid · Vit K	LGD/LOs combined with previous topics

LAB WORK			
PHYSIOLOGY PRACTICAL			
44.	**Clotting Time Determination**	147. Determine the Clotting Time	Practical/2hrs
45.	**Bleeding Time Determination**	148. Determine the Bleeding Time	Practical/combined
46.	**Prothrombin Time determination**	149. Determine the Prothrombin time (PT) in the given sample	Practical/combined

THEME –IV Transfusion Reaction			
SN0	**Topic**	**Learning Outcome**	**MIT/Hours**
PHYSIOLOGY			
47.	**Blood Grouping**	150. Describe different types of blood groups 151. Describe the genotype-phenotype relationships in blood groups. 152. Interpret the plausible blood groups (A-B-O) in children of parents with known blood groups. 153. Describe the role of agglutinogens and agglutinins in blood grouping 154. Describe the antigens and antibodies of the O-A-B blood types/ Interpret the types of agglutinins present in individuals with a specific blood group 155. Describe the process of agglutination	LGD/1hr
48.	**Transfusion Reactions**	156. Describe the antigens and antibodies of the Rh system 157. Describe the principles of blood typing 158. Explain universal donor and universal recipient blood groups 159. Enlist the manifestations of transfusion reaction	LGD/Los combined Above
49.	**Erythroblastosis Fetalis**	160. Define Rhesus incompatibility 161. Describe erythroblastosis fetalis 162. Describe the transfusion reactions resulting from mismatched O-A-B and Rh blood types	LGD/1hr
50.	**Major Histo-compatibility complex**	163. Define autoimmunity 164. Explain how immune reaction to self antigens is avoided 165. Define and classify Major Histocompatibility complex (MHC) 166. Characterize the significance and function of major histocompatibility complex molecules	LGD/Los combined Above

FORENSIC MEDICINE

51.	**Medico-legal importance of blood groups**	167. Describe the Medico-legal importance of blood groups in forensic work that is (a)Personal Identity b)inheritance claims (c) DNA profiling (d) Disputed paternity and maternity	LGD/2hrs
COMMUNITY MEDICINE			
52.	**Epidemiology Of Blood Borne Diseases**	168. Identify important blood born pathogens and how they are spread 169. Discuss the epidemiology of blood borne disease transmission and the potential for HIV, HBV and HCV transmission. 170. Identify routes of transmission of blood borne pathogens 171. Discuss the best practices to perform safe blood transfusion. 172. Identify potential exposure risks 173. List important safeguards against blood borne pathogen disease	LGD/1hr
LAB WORK			
PHYSIOLOGY PRACTICAL			
53.	**Blood grouping**	174. Determine the O-A-B and Rh blood group in the given sample	Demo/practical/2 hrs
54.	**Blood smear Preparation**	175. Prepare blood smear by thumb prick method.	Demo/practical
55.	**Blood Bank**	176. Observe the process of blood donation, blood product separation, screening and storage and observe the process of blood transfusion.	Demo



8 Examination and Methods of Assessment:

8.1 Instruction:

EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue,in time for smooth conduction of the
- exams.
- No student will be allowed to enter the examination hall after 10 minutes of scheduled examination time.
- No students will be allowed to sit in exam without College ID Card, and Lab Coat
- Students must sit according to their roll numbers mentioned on the seats.
- Student must bring their own stationary items (Pen, Pencil, Eraser, and Sharpener) – Sharing is prohibited
- Any disturbance or Indiscipline in the exam hall/venue is not acceptable.
- Students must not possess any written material or communicate with their fellow students
- Cell phones are strictly not allowed in examination hall. If any student is found with cell phone in any mode (silent, switched off or on) he/she will be **not be allowed to continue their exam.**
- **No student is allowed to leave the examination hall before half the time is over, paper is handed over to the examiner and properly marking the attendance**.

8.2 Assessment:

8.2.1 INTERNAL: total 10% (24 marks)

- Students will be assessed comprehensively through multiple methods.
- 10% marks of internal evaluation will be added to the KMU annual professional exam.
- The marks distribution is based on Formative Assessment done individually by all the concerned departments. It may include:
- Class participation and attitude of the students, class tests/ quiz, assignment, presentations, peer assessments, practicals log books and the internal exam results, all have specific marks allocation.
- NOTE: **at least 75% attendance is mandatory** to appear in the annual university examination.
- Biochemistry department is responsible to maintain the attendance record for BLOCK –A in coordination with all the concerned departments. \

8.2.2 UNIVERSITY EXAM:

Exam has 90% (210) marks in total
Each written paper consists of 120 MCQs and internal assessment marks will be added to the final marks

Final distribution of MCQs for Blood module , 1st year MBBS Annual University Examination

Subject	No. Of MCQs
Gross Anatomy	1
Histology	4
Embryology	0
Physiology	22
Biochemistry	12
PRIME including Research	3
Pharmacology	1
Pathology	4
Community medicine	2
Forensic medicine	1
Total MCQs	**50**

Each OSPE/ VIVA station has 05 marks i.e. total of 40 marks. Internal assessment marks will be added to the final marks.

	OSPE STATIONS	VIVA	TOTAL STATIONS
ANATOMY	**02**	**01**	**03**
Gross Anatomy			
Histology			
Embryology			
PHYSIOLOGY	**02**	**01**	**03**
BIOCHEMISTRY	**01**	**01**	**02**

Year 1 Professional Exam in System-based Curriculum-

THEORY PAPERS	MODULES	THEORY MARKS	INTERNAL ASSESSMENT THEORY(10%)	OSPE /VIVA	INTERNAL ASSESSMENT OSPE(10%	TOTAL MARKS
PAPER-A	FOUNDATION BLOOD	120	14	90	10	234
PAPER-B	MSK	120	13	90	10	233
PAPER-C	CVS RESPIRATORY	120	13	90	10	233
TOTAL MARKS		360	40	270	30	700

Shared by:
Dr Usman Mahboob MBBS, MPH, FHEA (UK), PhD (UK), Fellow FAIMER (USA)
Director Medical Education –Khyber Medical University Peshawar

Theory: University papers are MCQs based – their mark distribution and details are already shared in the Table of specifications. Please refer to that.

OSPE: the KMU recommendations are:

- Minimum 18 stations
- 12 stations are Mix of static and interactive stations.
- Subjectwise distribution is already shared
- **Time:** Minimum 3-6 minutes, including 1 minute for movement between the stations and reading the instructions.
- Faculty up to demonstrator/ SR level to be involved.
- 06 viva stations including viva with three internal and three external examiners for the major core subjects including Anatomy, Physiology and Biochemistry.
- One of the external examiner - Nominated as coordinator/ Convener by the University for observing the examination process.

9 Learning Opportunities and Resources

9.1 Instruction

- Try to be regular in the classes as teacher is the best guide.
- Make your studies a primary goal as you have to deal with precious human lives.
- Stick to one book of your choice and stick the relavent high yield points from other sources to that single book of choice –it will make your examination and preps a lot easier
- Try to have as many sources of MCQ book as possible –it will help you focus on the most relevant and high yield knowledge.

9.2 Books:

CORE SUBJECTS	RESOURCES	CHAPTERS/ pages
ANATOMY	A. GROSS ANATOMY 1. Clinical Anatomy by Regions by Richard S. Snell 2. K.L. Moore, Clinically Oriented Anatomy 3. General Anatomy by BD Churissia B. HISTOLOGY 1. B. Young J. W. Health Wheather's Functional Histology C. EMBRYOLOGY 1. Keith L. Moore. The Developing Human 2. Langman's Medical Embryology B. REFERENCE BOOKS Gray's Anatomy for Students	Embryology langman chapter 3 pg 34 Chapter 4 pg 50 Chapter 5 pg 59 Chapter 6 pg 72 Chapter 8 pg 106 Chapter 9 pg 128
BIOCHEMISTRY	A. TEXTBOOKS for 1ST PROFESSIONAL 1.Pankaja Naik Or 2. Satyanarayana & Chakrapani 3.MCQ's Books & OLD PAPERS B. REFERENCE BOOKS 1. Harper's Illustrated Biochemistry 2. Textbook of medical biochemistry by Chatterjee-8thEdition 3.Lehninger Principle of Biochemistry	Biochemistry by Chatterjee Chemistryoif Hemoglobin pg#149 Porphyrins pg 540 Vitamin pg# 162

	4. Biochemistry by Devlin	
PHYSIOLOGY	A. TEXTBOOKS 1. Textbook Of Medical Physiology by Guyton And Hall 2. Ganong ' S Review of Medical Physiology 3. Human Physiology by Lauralee Sherwood 4. Berne & Levy Physiology 5. Best & Taylor Physiological Basis of Medical Practice B. REFERENCE BOOKS 1. Guyton & Hall Physiological Review 2. Essentials Of Medical Physiology by Jaypee 3. Textbook Of Medical Physiology by InduKhurana 4. Short Textbook Of Physiology by Mrthur 5. NMS Physiology	Chapter 33 RBCs Anemia and Polycythemia Pg no 439-447 Chapter 34 Resistance of body to infection pg 449 to 457 Chapter 35 Resistance of body to infection part 2 Pg no 459-469 Chapter 36 Blood types pg no 471-475 Chapter 37 Hemostasis pg no 477-487

9.3 Other learning sources:

Hands-on Activities/ Practical	Students will be involved in Practical sessions and hands-on activities that link with the foundation and Blood modules to enhance the learning
Labs	Utilize the lab eg. Histology lab and Anatomy Museum, Biochemistry and Physiology labs. to relate the knowledge to the specimens and models available
Skill Labs	A skills lab provides the simulators to learn the basic skills and procedures. Drawing blood and different procedures at biochemistry and Physiology labs. This helps build the confidence to approach the patients
Videos	Lot of good academic high quality Videos are easily available on Youtube..e.g Introduction to biochem,physiology simplified,Guyton and Hall physiology utube videos,etc.
Computers Lab.	In the present day the students must be computer literate. Fortunately computer lab with internet faciliy is available on the campus. Students have the access to Digital library, various websites for articles and different topics. This can be an additional advantage to increase learning.

Self Learning	Self Learning is scheduled to search for information to solve cases, read through different resources and discuss among the peers and with the faculty to clarify the concepts

10 Timetables

Block-A: Blood Module

SUBJECT	TOPICS	TEACHER's NAME	MODE OF TEACHING	VENUE
ANATOMY	Gross Anatomy	Dr Sara Jadoon	Lecture/ LGD	Lecture Hall-1
	Embryology	Dr Robina Shaheen	Lecture/ LGD	Lecture Hall-1
	Histology	Dr.Sumaira Javed	Lecture/ LGD	Lecture Hall-1
	HISTOLOGY PRACTICALS	Dr Gul e Shawar	PRACTICALS/ SGD	Histology Lab (1st Floor Biochemistry Dept)
	Gross Anatomy –Dissection Hematopoiteic system Lymphatic system	Dr Obaid Kazmi Dr Ramla Malik Dr Shahid Farooq	SGD	
BIOCHEMISTRY	Porphyrin & Haemoglobin	Prof. Dr. Ruhila Hanif	Lecture/ LGD	Lecture Hall-1
	Iron Metabolism	Dr. Ayesha Awan	Lecture/ LGD	
	Water Soluble Vitamins Immunoglobulins	Dr. Sofia Shoukat Dr.Nadia Daud	Lecture/ LGD Lecture/LGD	
	PRACTICALS**; Details shared**	Dr. Asma Rafique Dr. Maria Khan Dr Fizza Gul	Practicals performance and + Scheduled SGDs	Biochemistry Lab (Ground Floor) & Demo Room.
PHYSIOLOGY	Blood Physiology Hematopoises Blood Groups	Dr Maria	Lecture/ LGD	Lecture Hall-1
	PRACTICALS	Department will nominate lectures for each week	Practicals performance and + Scheduled SGDs	Physiology Lab

NOTE:1).Students will follow the timetables displayed on department notice boards.
2).Venues and teachers name may get changed(If required).

AYUB MEDICAL COLLEGE ABBOTTABAD
TIME TABLE OF 1ST YEAR MBBS CLASS FOR THE SESSION 2026
BLOCK-1 (BLOOD) WEEK-1THEME: PALLOR AND SWELLING

DAYS	8.00..... 9.00	9.00... 10.00	10.00.....11.00	11.00…12.00	12.00 …12.45	12.45 ….1.15	1.15…….3.00			
							PRACTICAL			TUTORIAL/ SGD Computer lab/ library
							Anatomy/ Histology	Physiology	Biochemistry	
MONDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-13 Dr Maria Blood Physio	Biochemistry-17 Dr Sofia-1 H_2O Soluble Vit	Pathology 4 Anemia Dr Saman	PRAYER BREAK	**A** **Dr Gul e Shawar**	**B**	**C** **Dr Fizza**	**D**
TUESDAY	Histology-6 Dr Sumaira Javed	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid	Physiology-14 Dr Maria Blood Physio	Biochemistry-18 Blood 1 Dr Ruhila	PRIME-7 Psychiatry4 Ms Aisha Salim		**B** **Dr Gul e Shawar**	**C**	**D** **Dr Maria**	**A**
WEDNESDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-15 Dr Maria Blood Physio	Embryology-6 Dr Robina Shaheen	PRIME-8 CM -3 Research Dr Zainab		**C** **Dr Gul e Shawar**	**D**	**A** **Dr Maria**	**B**
THURSDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-16 Dr Maria Blood Physio	Biochemistry-!9 Blood 2 Dr Ruhila	Embryology-7 Dr Robina Shaheen		**D** **Dr Gul e Shawar**	**A**	**B** **Dr Asma**	**C**
FRIDAY	**8.00…9.00** Histology-7 Dr Sumaira Javed	**9.00…..10.00** Biochemistry-20 Dr Sofia-2 H_2O Soluble Vit	Physiology-17 Dr Maria Blood Physio	Pharmacology 2 Drugs Of Anemia Dr Adeel	Islamiyat 2 Mr Aftab		**HALF DAY**			

*Physiology Department will nominate lectures for each week

ATTENTION FACULTY: Kindly Submit the MCQs for Block Assessmen By: WEDNESDAY (According to the provided KMU BLUE-PRINTS)

ATTENTION STUDENTS. For BLOCK A Internal Assessment Details Kindly refer to the NOTICE BOARDS

AYUB MEDICAL COLLEGE ABBOTTABAD

TIME TABLE OF 1ST YEAR MBBS CLASS FOR THE SESSION 2026

BLOCK-1 (BLOOD) WEEK-2 THEME: FEVER(INFECTION AND IMMUNITY)

DAYS	8.00..... 9.00	9.00... 10.00	10.00.....11.00	11.00…12.00	12.00 …12.45	12.45 ….1.15	1.15…….3.00			
							PRACTICAL			TUTORIAL/ SGD Computer lab/ library
							Anatomy/ Histology	Physiology	Biochemistry	
MONDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-18 Dr Maria Blood Physio	Biochemistry-21 Dr Sofia-3 H_2O Soluble Vit	Pathology 5 Hemolytic A Dr Noreen	PRAYER BREAK	**A** **Dr Gul e Shawar**	**B**	**C** **Dr Fizza**	**D**
TUESDAY	Histology-8 Dr Sumaira Javed	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid	Physiology-19 Dr Maria Blood Physio	Biochemistry-22 Blood 3 Dr Ruhila	Community Medicine-4 Infection & Prevention Dr Ashfaq		**B** **Dr Gul e Shawar**	**C**	**D** **Dr Maria**	**A**
WEDNESDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-20 Dr Maria Blood Physio	Embryology-8 Dr Robina Shaheen	PRIME-9 CM-4 Research Dr Zainab		**C** **Dr Gul e Shawar**	**D**	**A** **Dr Maria**	**B**
THURSDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-21 Dr Maria Blood Physio	Biochemistry-23 Blood 4 Dr Ruhila	Embryology-9 Dr Robina Shaheen		**D** **Dr Gul e Shawar**	**A**	**B** **Dr Asma**	**C**
FRIDAY	**8.00…9.00** Histology-9 Dr Sumaira Javed	**9.00…..10.00** Biochemistry -20 Dr Sofia-4 H_2O Soluble Vit	Physiology-24 Dr Maria Blood Physio	Forensic Medicine 3 Death & M/L Dr Zartssh	Pak Studies3 Mr Manzoor		**HALF DAY**			

MCQs for Block Assessment- REMINDER for FACULTY
Proposed Date of Block Assessment: FRIDAY after completion of the Module

AYUB MEDICAL COLLEGE ABBOTTABAD

TIME TABLE OF 1ST YEAR MBBS CLASS FOR THE SESSION 2026

BLOCK-1 (BLOOD WEEK-3 THEME: EXCESSIVE BLEEDING AND TRANSFUSION REACTIONS

DAYS	8.00..... 9.00	9.00... 10.00	10.00.....11.00	11.00…12.00	12.00 …12.45	12.45 ….1.15	1.15…….3.00			
							PRACTICAL			TUTORIAL/ SGD Computer lab/ library
							Anatomy/ Histology	Physiology	Biochemistry	
MONDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-23 Dr Maria Blood Physio	Biochemistry-25 Dr Nadia Immunology	Community Medicine-5 Blood Borne Diseases Dr Awais	PRAYER BREAK	A Dr Gul e Shawar	B	C Dr Fizza	D
TUESDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-24 Dr Maria Blood Physio	Biochemistry-26 Blood 5 Dr Ruhila	Community Medicine-6 Vaccinology Dr Awais		B Dr Gul e Shawar	C	D Dr Maria	A
WEDNESDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-25 Dr Maria Blood Physio	Embryology-10 Dr Robina Shaheen	PRIME-10 CM-5-Research Dr Zainab		C Dr Gul e Shawar	D	A Dr Maria	B
THURSDAY	D I S S E C T I O N Batch A: Dr Obaid Batch B:Dr Ramla Batch C: Dr Shahid		Physiology-26 Dr Maria Blood Physio	Biochemistry-27 Iron Meta -1 Dr Ayesha	Gross Anatomy-2 Dr Sara Jadoon		D Dr Gul e Shawar	A	B Dr Asma	C
FRIDAY	8.00…9.00 Histology-10 Dr Sumaira Javed	9.00…..10.00 Biochemistry-28 Iron Meta -2 Dr Ayesha	Physiology-27 Dr Maria Blood Physio	Forensic Medicine 4 M/L Blood DNA etc Dr Sadia Habiba	Islamiyat 3 Mr Aftab		HALF DAY			

ATTENTION STUDENTS. For BLOCK A Internal Assessment Details Kindly refer to the NOTICE BOARDS

11 For inquiry and troubleshooting

Please contact
Associate Professor Dr Ayesha Awan -0333-7879702 ana.khyber@gmail.com
Assistant Professor Dr Sofia Shoukat - shoukatumar3@gmail.com

DEPARTMENT OF BIOCHEMISTRY

AYUB MEDICAL COLLEGE ABBOTTABAD.

12 Course Feedback Form

Course Title: _____

Semester/Module _____ Dates:_____

Please fill the short questionnaire to make the course better.

Please respond below with 1, 2, 3, 4 or 5, where 1 and 5 are explained.

THE DESIGN OF THE MODLUE

A. Were objectives of the course clear to you? Y ☐ N ☐

B. The course contents met with your expectations
l. Strongly disagree 5. Strongly agree ☐

C. The lecture sequence was well-planned
l. Strongly disagree 5. Strongly agree ☐

D. The contents were illustrated with
l. Too few examples 5. Adequate examples ☐

E. The level of the course was
l. Too low 5. Too high ☐

F. The course contents compared with your expectations
l. Too theoretical 5. Too empirical ☐

G. The course exposed you to new knowledge and practices
l. Strongly disagree 5. Strongly agree ☐

H. Will you recommend this course to your colleagues?
l. Not at all 5. Very strongly ☐

THE CONDUCT OF THE MODLUE

A. The lectures were clear and easy to understand
l. Strongly disagree 5. Strongly agree ☐

B. The teaching aids were effectively used
l. Strongly disagree 5. Strongly agree ☐

C. The course material handed out was adequate
l. Strongly disagree 5. Strongly agree ☐

D. The instructors encouraged interaction and were helpful
l. Strongly disagree 5. Strongly agree ☐

E. Were objectives of the course realized? Y ☒ N ☐

F. Please give overall rating of the course

90% - l00%	( )	60% - 70%	( )
80% - 90%	( )	50% - 60%	( )
70% - 80%	( )	below 50%	( )

Please comment on the strengths of the course and the way it was conducted.

Please comment on the weaknesses of the course and the way it was conducted.

Please give suggestions for the improvement of the course.

Optional – Your name and contact address:

Thank you!!