



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**



THE BLOOD MODULE

STUDY GUIDE 2022

FIRST PROFESSIONAL M.B.B.S

BAQAI MEDICAL COLLEGE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD
BAQAI MEDICAL UNIVERSITY**

51-Deh Tor, Gadap Road, Super Highway. P.O Box: 2407, Karachi-75340, Pakistan. Phone (092-21)34410-293 to 298, 34410-427 to 430.

Fax: (092-21)34410-317, 34410-43. Email: info@baqai.edu.pk, Web: www.baqai.edu.pk/

LIST OF ABBREVIATIONS

BMC	Baqai Medical College
BMU	Baqai Medical University
CBL	Case Based Learning
LGIF	Large Group Interactive Format
LOs	Learning Objectives
MCQs	Multiple Choice Questions
MSK	Musculoskeletal
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
PEaRLS	Professionalism, Ethics, Research, Leadership, Communication Skills
PW	Practical Work
SDL	Self Directed Learning
SGD / SGT	Small Group Discussion / Small Group Teaching
TS	Teaching Strategy



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**



VISION

**BAQAI MEDICAL UNIVERSITY
VISION STATEMENT**

To evolve as a nucleus for higher learning with a resolution to be socially accountable, focused on producing accomplished health care professionals for services in all spheres of life at the national and global level.



MISSION

**BAQAI MEDICAL UNIVERSITY
MISSION STATEMENT**

University is dedicated to the growth of competencies in its potential graduates through dissemination of knowledge for patient care, innovation in scholarship, origination of leadership skills, and use of technological advancements and providing.



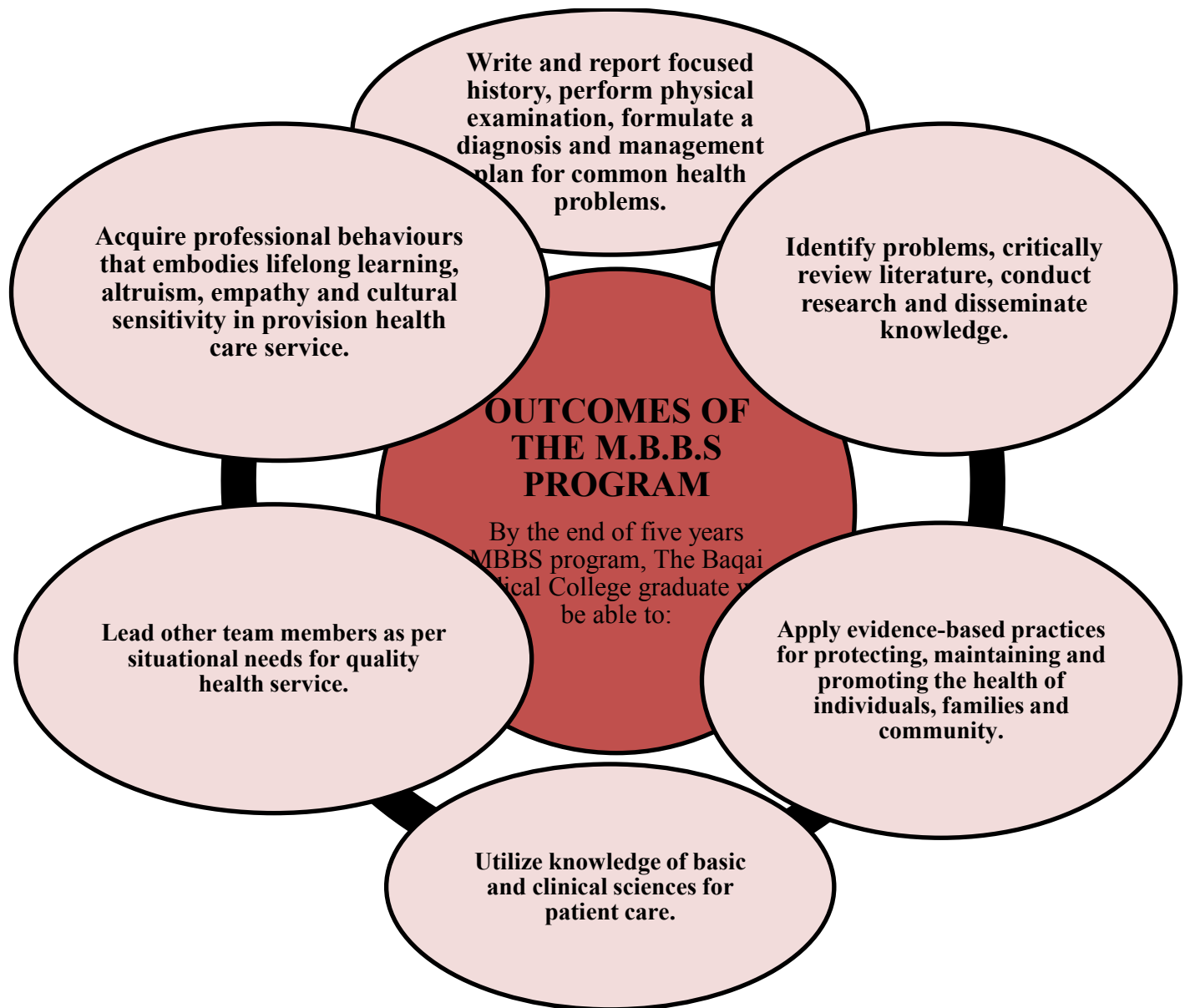
**BAQAI MEDICAL COLLEGE
MISSION STATEMENT**

To produce medical graduates, who are accomplished and responsible individuals and have skills for problem solving, clinical judgment, research & leadership for medical practice at the international level and are



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**





**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

MODULAR PLANNING COMMITTEE

Prof. Dr. Jameel Ahmed (Medicine)	Chairman Curriculum Committee
Prof. Dr. Syed Inayat Ali (Anatomy)	Chairman Modular Committee
Dr. Syed Adnan Ahmed (Physiology)	Co-Chairman Modular Committee
Dr. Benish Zafar (Biochemistry)	Secretary Modular Committee
Prof. Dr. Nazia Jameel (Community Medicine)	Member
Dr. Maeesa Sajeel (Pathology)	Member
Dr. Hina Masood (Pharmacology)	Member
Dr. Rafay Ahmed Siddiqui (Forensic Medicine)	Member
Dr. Sidra (Surgery)	Member
Dr. Masooda (Medicine)	Member
Department of Medical Education	All Members



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

INTRODUCTION TO BLOOD MODULE GUIDE:



The blood module aims to;

- **Provide the basic understanding of hematopoiesis and hemostasis at the molecular level.**
- **Outline the basic pathological processes in the development of cancers.**
- **Deal with the basic pathophysiology and pharmacological aspects of infections and chemotherapeutic agents and integrate it with clinical sciences.**
- **Know the presentations and principles of management of common hematological, immunological, inflammatory and neoplastic disorders.**



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

Year to be taught: First Professional M.B.B.S.

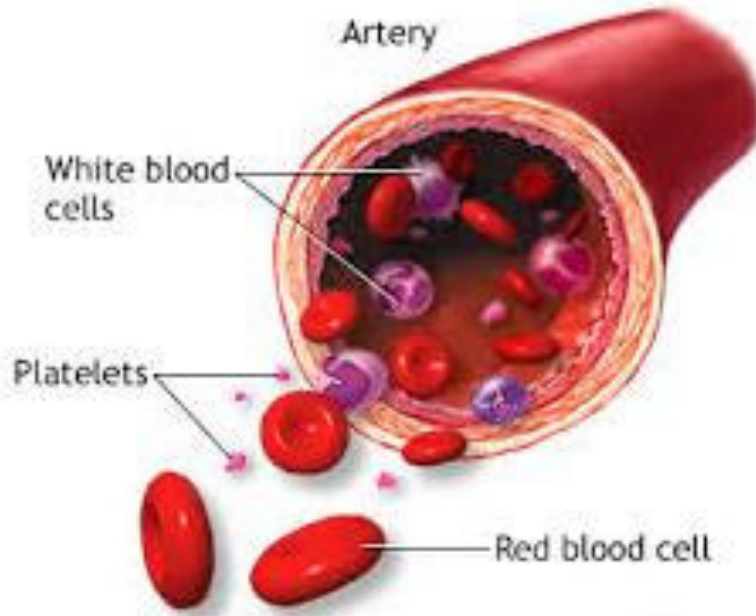
Placement of Blood Module: Fifth

**Duration- the start and end of Blood Module:
5 weeks + 1 day**

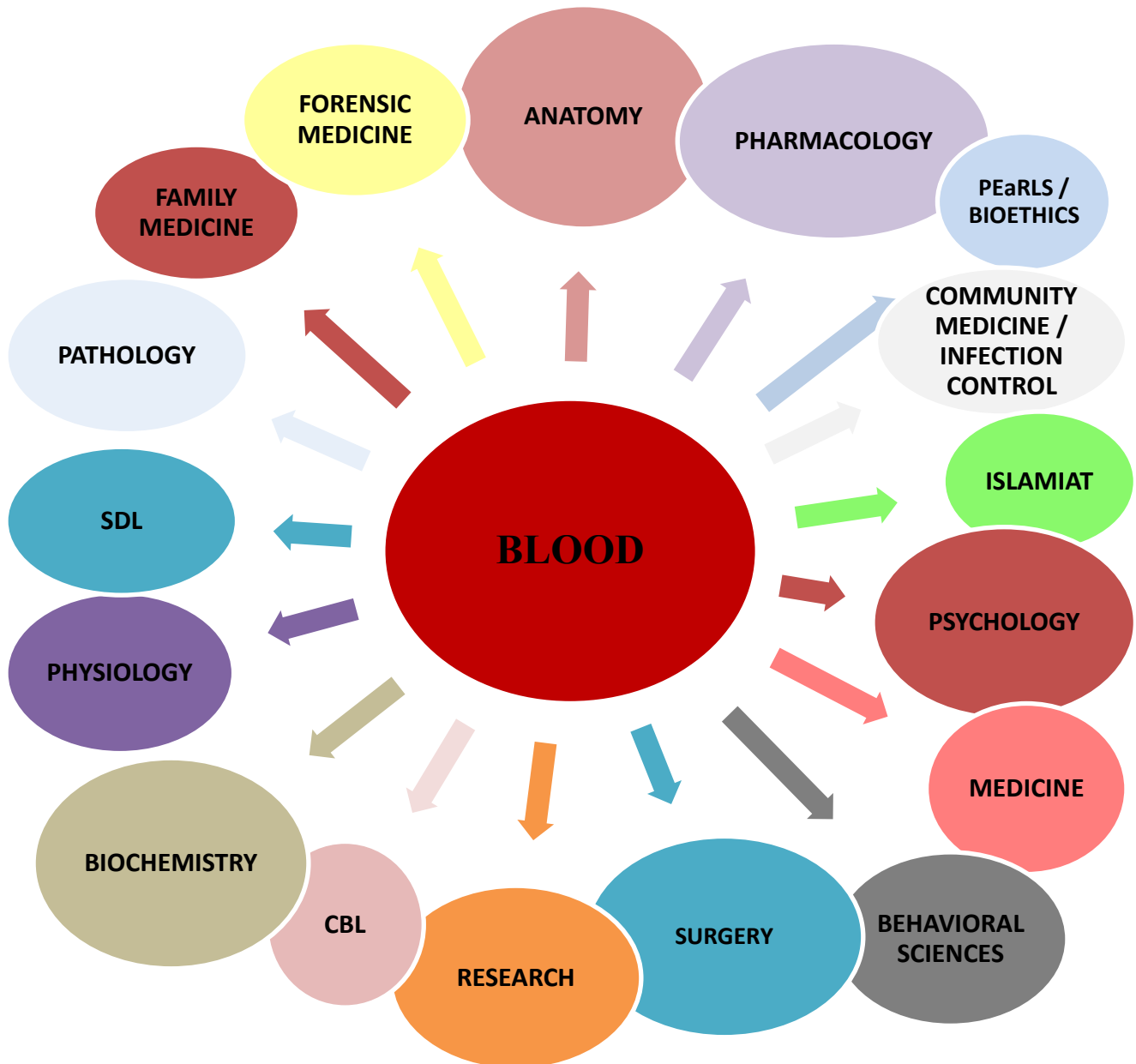
Date: 19. 09. 22 – 21. 10. 2022

**End of Module Assessment (EOA): 24. 10.
2022**

**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**



INTEGRATED TEACHING



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

DEPARTMENT OF PHYSIOLOGY

By the end of lecture/module, first professional MBBS student will be able to:

TOPIC	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
INTRODUCTION OF BLOOD <ul style="list-style-type: none"> • Functions of blood, • Functions of plasma proteins & • Over view of Red blood cells, immunity & hemostasis 	Lecture	Lecture hall - 1	60 minutes	Dr. M. Ali	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
ESTIMATION OF Hb <ul style="list-style-type: none"> • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing estimation of hemoglobin • Explain the procedure of this lab. • Estimate & record HB % of given subject. • Observe the precautions during performance • Mention the normal hemoglobin 	Skilled Lab / Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>concentration in males & females</p>					
<p>PLASMA & ITS FUNCTION</p> <ul style="list-style-type: none"> • Define plasma. • List the main functions of plasma. • Mention the component that forms plasma. • Categorize major plasma proteins with their functions. 	<p>Lecture</p>	<p>Lecture hall - 1</p>	<p>Dr. Adnan Ahmed</p>	<p>Dr. Saba Leeza</p>	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>ESTIMATION OF Hb</p> <ul style="list-style-type: none"> • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing estimation of hemoglobin • Explain the procedure of this lab. • Estimate & record HB % of given subject. • Observe the precautions during performance • Mention the normal hemoglobin concentration in males & females 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE
<p>INTRODUCTION TO RBCs</p> <ul style="list-style-type: none"> • Define the shape of RBC & its importance. • List the functions of RBCs. • Summarize the structural components of hemoglobin (Hb). • List the types of hemoglobin (Hb). 	Lecture	Lecture hall - 1	60 minutes	Dr. Saba Leeza	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
<p>ERYTHROPOISIS</p> <ul style="list-style-type: none"> • Define Erythropoiesis 	Lecture	Lecture hall - 1	45 minutes	Prof. Dr Qamer Aziz	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Summarize the steps of RBCs synthesis. Explain normal red cell fragility. List the types of Anemias with their causes. Define polycythemia with its causes 					
ESTIMATION OF Hb <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing estimation of hemoglobin Explain the procedure of this lab. Estimate & record Hb % of given subject. Observe the precautions during performance Mention the normal hemoglobin concentration in males & female 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE
RESPIRATORY MODULE EXAM	Module Exam	Lecture hall - 1			
RESPIRATORY MODULE EXAM	Module Exam	Lecture hall - 1			



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>INTRODUCTION TO LEUCOCYTES (CLASSIFICATION OF LEUCOPOISIS)</p> <ul style="list-style-type: none"> • Classify the types of white blood cells • List the functions of each types of WBCs. • Define inflammation with its causes. • Explain walling – off effect & mechanism of chemotaxis • Summarize the reticuloendothelial system 	Lecture	Lecture hall - 1	60 minutes		SEQ
<p>RBC COUNT LAB</p> <ul style="list-style-type: none"> • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing RBC Count • Explain the procedure of this lab. • How to Charge the Neubauer's chamber? • How to apply and calculate the result by using formula of total RBC count? 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Mention the significance of Heyem's fluid. 					
<p>FUNCTIONS OF LEUCOCYTES</p> <ul style="list-style-type: none"> Purpose of WBCs, Phenomenon of margination, diapedesis, ameboid motion & chemotaxis, Phagocytosis in detail, Role of WBCs in inflammation, Functions of eosinophils & basophils, Role of WBCs in innate immunity, Functions of B cells & Types & functions of T cells 	Lecture	Lecture hall - 1	60 minutes	Dr. M. Ali	<ul style="list-style-type: none"> BCQ SEQ
<p>RBC COUNT LAB</p> <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing RBC Count Explain the procedure of this lab. How to Charge the Neubar's chamber? How to apply and calculate the result 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>by using formula of total RBC count?</p> <ul style="list-style-type: none"> Mention the significance of Heyem's fluid. 					
<p>RBC COUNT LAB</p> <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing RBC Count Explain the procedure of this lab. How to Charge the Neubauer's chamber? How to apply and calculate the result by using formula of total RBC count? Mention the significance of Heyem's fluid. 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE
<p>IMMUNITY AND ITS TYPES</p>	Lecture	Lecture hall – 1	60 minutes	Dr Saleem	<ul style="list-style-type: none"> BCQ SEQ
<p>AQUIRED IMMUNITY</p> <ul style="list-style-type: none"> Define the Terms Immunity, Antigen, Epitope, Antibodies & Allergens. Categorize the Types of Immunity. Differentiate between Humoral 	Lecture	Lecture hall - 1	60 minutes	Dr Adnan Ahmed	<ul style="list-style-type: none"> BCQ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>& Cell Mediated Immunity.</p> <ul style="list-style-type: none"> • Describe the Role of B – Lymphocytes in Humoral Immunity. • Discuss the Structure, Types, Activation & Mechanism of Action of Antibodies. • Relate Primary & Secondary Response of Antibody with Concept of Immunization 					
<p>CELL MEDIATED IMMUNITY 1</p> <ul style="list-style-type: none"> • Enlist Main Functions Of Cell Mediated Immune Response • Explain Types Of Antigen-presenting Cells • Role Of Antigen-presenting Cells • Sequence Of Events During Activation Of Helper T Cells • Role Of Helper T Cells • Explain How T Lymphocytes Are Activated By Binding To Complexes On The 	Lecture	Lecture hall – 1	60 minutes	Dr. Saba Abrar	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

Surfaces Of Macrophages.					
WBC COUNT LAB <ul style="list-style-type: none"> ▪ Charging the Neubar’s chamber, ▪ To derive formula of total leukocyte count, ▪ Procedure of counting TLC ▪ To familiar with apparatus, clinical significance & sources or error 	Lab/ Practical	Physiology Lab	120 minutes	Dr. M. Ali	OSPE
WBC COUNT LAB <ul style="list-style-type: none"> • Mention the principles & methods of performing WBC Count • Explain the procedure of this lab. • Identify the WBC pipette to perform WBC count • Mention the significance of Turk’s fluid • Perform the WBC count on Neubauer’s chamber • Mention the normal WBC count • How to take blood sample and Charge 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>the Neubauer's chamber?</p> <ul style="list-style-type: none"> • How to apply and calculate the result by using formula of total WBC count? 					
<p>WBC FUNCTIONS AND ABNORMALITIES</p> <ul style="list-style-type: none"> • Causes of Physiological & pathological leucocytosis • Causes & effects of leukopenia • Types & effects of leukemias • Delayed hypersensitivity • Mechanism of allergy • Examples of allergy & • Functions of WBCs in detail 	Lecture	Lecture hall - 1			<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
<p>HEMOSTASIS</p> <ul style="list-style-type: none"> • Define the Term "Hemostasis". • List & Define the Events of Hemostasis. • Categorize Clotting Pathways & Explain the Process of Blood Clotting. • Mention the Abnormalities of Increasing or Decreasing Levels of Platelets. 	Lecture	Lecture hall - 1	60 minutes	Dr Adnan Ahmed	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>WBC COUNT LAB</p> <ul style="list-style-type: none"> • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing WBC Count • Explain the procedure of this lab. • Identify the WBC pipette to perform WBC count • Mention the significance of Turk's fluid • Perform the WBC count on Neubauer's chamber • Mention the normal WBC count • How to take blood sample and Charge the Neubar's chamber? • How to apply and calculate the result by using formula of total WBC count? 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE
<p>INTRODUCTION OF THROMBOCYTES, COAGULATION 1</p> <ul style="list-style-type: none"> • Identify the normal count, variations and life span of platelets 	Lecture	Lecture hall - 1	60 minutes	Ms. Nida Lathiya	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> • Lists the properties and functions • Overview the coagulation mechanism 					
COAGULATION 2	Lecture	Lecture hall - 1	60 minutes	Dr. Saba Abrar	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
Self- Assessment	Lecture	Lecture hall - 1	45 minutes	Dr. Asma	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
O-A-B BLOOD TYPES 1 <ul style="list-style-type: none"> ▪ ABO blood group system ▪ Nature of OAB system antigens ▪ Agglutinogens & agglutinins ▪ Titer of agglutinins at different age groups ▪ Allel or genotype & 4 blood groups & Concept of phenotype 	Lecture	Lecture hall - 1	120 minutes	Dr. M Ali	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
SKILL LAB BT & CT <ul style="list-style-type: none"> • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing bleeding time. • Explain the procedure of this lab. 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> • Estimate & record the bleeding time of given subject. • Observe the precautions during performance • Identify, name & purpose of the Instruments used. • Mention the principles & methods of performing clotting time. • Explain the procedure of this lab. • Estimate & record the clotting time of given subject. • Observe the precautions during performance 					
<p>O-A-B BLOOD TYPES 1</p> <ul style="list-style-type: none"> • Define the Terms “Agglutinin”, “Agglutinins” & “Agglutination”. • Categorize the Blood Types as per O – A – B System. • Explain the Basis of O – A – B Blood Types. • Mention the Importance of Blood Grouping. 	Lecture	Lecture hall - 1	60 minutes	Dr Adnan Ahmed	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
SKILL LAB BT & CT	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing bleeding time. Explain the procedure of this lab. Estimate & record the bleeding time of given subject. Observe the precautions during performance Identify, name & purpose of the Instruments used. Mention the principles & methods of performing clotting time. Explain the procedure of this lab. Estimate & record the clotting time of given subject. Observe the precautions during performance 					
<p>FORMATIVE ASSESSMENT</p> <ul style="list-style-type: none"> Have a concept of functions of all 3 types of blood cells 	Formative assessment	Lecture hall - 1	120 minutes	Dr. M Ali	<ul style="list-style-type: none"> BCQ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Understand all aspects of immunity. 					
<p>SKILL LAB BT & CT</p> <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing bleeding time. Explain the procedure of this lab. Estimate & record the bleeding time of given subject. Observe the precautions during performance Identify, name & purpose of the Instruments used. Mention the principles & methods of performing clotting time. Explain the procedure of this lab. Estimate & record the clotting time of given subject. Observe the precautions during performance 	Lab/ Practical	Skills Lab	120 minutes	Dr. Saba Leeza	OSPE
Rh BLOOD TYPES	Lecture	Lecture hall - 1	120 minutes	Dr Sobia Khan	<ul style="list-style-type: none"> BCQ SEQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> • Define agglutinogens, agglutinins & agglutination • List the types of blood groups. • Explain the concept of universal donor & recipient • Explain the mechanism of cross matching & its importance • Summarize the hazards of mismatched transfusion reactions. • Define erythroblastosis fetalis, its causes & prevention 					
<p>TISSUE AND ORGAN TRANSPLANTATION</p> <ul style="list-style-type: none"> ▪ Autograft, isograft, allograft & xenograft, ▪ Antigens on tissue cells, ▪ Graft rejection, ▪ Prevention of graft rejection & ▪ Types of rejection reactions. 	Lecture	Lecture hall - 1	60 minutes	Dr. M Ali	<ul style="list-style-type: none"> ▪ BCQ ▪ SEQ
<p>SKILL LAB BLOOD GROUPING</p>	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing ABO blood grouping. Explain the procedure of this lab. Estimate & record the blood group of given subject. Observe the precautions during performance. 					
SELF-ASSESSMENT	Formative assessment	Lecture hall - 1	120 minutes	Dr Sobia Khan	<ul style="list-style-type: none"> BCQ SEQ
SKILL LAB BLOOD GROUPING <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing ABO blood grouping. Explain the procedure of this lab. Estimate & record the blood group of given subject. Observe the precautions during performance. 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

SKILL LAB BLOOD GROUPING <ul style="list-style-type: none"> Identify, name & purpose of the Instruments used. Mention the principles & methods of performing ABO blood grouping. Explain the procedure of this lab. Estimate & record the blood group of given subject. Observe the precautions during performance. 	Lab/ Practical	Physiology Lab	120 minutes	Dr. Saba Leeza	OSPE
BLOOD MODULE EXAM	Module Exam	Lecture hall – 1			

DEPARTMENT OF BIOCHEMISTRY					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
BIOSYNTHESIS OF PORPHYRINS <ul style="list-style-type: none"> Define porphyrins Describe the sequence of reactions 	Lecture	Lecture hall 1	45 minutes	Ms Nazish	BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>involved in heme synthesis</p> <ul style="list-style-type: none"> Identify the enzymes and co-enzymes involved in heme synthesis. Describe the regulation of heme synthesis. 	Lecture	Lecture hall 1	45 minutes	Ms Nazish	SEQ, BCQs
<p>PORPHYRIAS</p> <ul style="list-style-type: none"> Define porphyrias Classify the types of porphyrias Identify the enzyme deficient in every porphyria Outline the clinical manifestations of porphyria 	Lecture	Lecture hall 1	60 minutes	Ms Nazish	BCQs
<p>METABOLISM OF Fe</p> <ul style="list-style-type: none"> Describe the absorption and metabolism of Fe in body. Identify the importance of essential iron 	Lecture	Lecture hall 1	60 minutes	Dr. Farhan	SEQ, BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>in formation of hemoglobin.</p> <ul style="list-style-type: none"> Relate the role of ferritin in iron overload. 					
<p>METABOLISM OF Cu</p> <ul style="list-style-type: none"> Describe the absorption of Cu from small intestine. List the functions of Cu in body Identify the importance of Cu in Fe metabolism List the functions of Cu in body. Identify the importance of Cu in Fe metabolism 	Lecture	Lecture hall 1	45 minutes	Dr. Farhan	BCQs
<p>METABOLISM OF HAEMOPOETIC VITAMINS</p> <ul style="list-style-type: none"> Relate the function of vitamin B12 and folic acid with hemoglobin synthesis Discuss the disruption of 	Lecture	Lecture hall 1	120 minutes	Dr. Iffat	SEQ, BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

RBC maturation in vitamin B12 deficiency					
HAEMOGLOBIN <ul style="list-style-type: none"> • Describe the structure of hemoglobin • Identify the different types of Hb present in humans • Define methemoglobin and methemoglobinemia. • Outline the conversion of methemoglobin into Hb • Discuss about CO poisoning 	Lecture	Lecture hall 1	60 minutes	Ms. Nazish	SEQ, BCQs
HEMOGLOBINOPATHIES <ul style="list-style-type: none"> • List the different types of abnormal Hb produced by mutation in a gene • Describe the mechanism of sickle cell anemia. • Outline the long term effects of sickle cell. 	Lecture	Lecture hall 1	120 minutes	Ms. Nazish	BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Describe the pathophysiology of α-thalassemia and β-thalassemia Outline the clinical features of α-thalassemia and β-thalassemia 					
VITAMIN E AND K <ul style="list-style-type: none"> List the different forms of vitamin E that occur in nature. Identify the antioxidant property of vitamin E Outline the clinical features of vitamin E deficiency. List the different forms of vitamin K Outline the dietary sources and daily requirements of vitamin K 	Lecture	Lecture hall 1	60 minutes	Ms. Nazish	SEQ, BCQs
DEGRADATION OF HEME	Lecture	Lecture hall 1	60 minutes	Dr. Iffat	BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> List the sources of bilirubin Identify the principal sites of Hb breakdown Describe the reactions involved in heme catabolism Discuss the transport of bilirubin in blood to liver 					
JAUNDICE AND CLASSIFICATION OF JAUNDICE. <ul style="list-style-type: none"> Define jaundice Classify jaundice. Describe the types of jaundice Outline the clinical features and biochemical findings in all types of jaundice 	Lecture	Lecture hall 1	45 minutes	Dr. Iffat	SEQ, BCQs
LIVER FUNCTION TESTS-1 <ul style="list-style-type: none"> Identify the liver function tests used for 	Lecture	Lecture hall 1	60 minutes	Dr. Farhan	BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>diagnosis of jaundice.</p> <ul style="list-style-type: none"> Describe van den Bergh test for estimating bilirubin Relate the estimation of the enzymes : ALT, AST, ALP and GGT in differential diagnosis of liver dysfunction 					
<p>PLASMA PROTEINS</p> <ul style="list-style-type: none"> Define plasma proteins State their normal level in blood Outline the functions of plasma proteins in our bodies Relate the absence of albumin in plasma with development of edema. Classify Globulins: α, β, and γ-globulins 	Lecture	Lecture hall 1	120 minutes	Dr. Iffat	SEQ, BCQs



BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD

<ul style="list-style-type: none"> Identify the site of synthesis of globulins. Outline the functions of different types of globulins. Identify the site of synthesis of fibrinogen. Outline the functions of fibrinogen 					
<p>IMMUNOGLOBULINS-1</p> <ul style="list-style-type: none"> Define immunoglobulin Classify immunoglobulins Identify the site of synthesis of Igs Define antigen Differentiate between humoral immunity and cell-mediated immunity. Outline the functions of each class of 	Lecture	Lecture hall 1	60 minutes	Mr. Jamal	BCQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

immunoglobulins					
IMMUNOGLOBULINS-2 <ul style="list-style-type: none"> • Identify the difference between serum IgA and non-vascular IgA in secretions • Describe the function of the 'secretory component' T-piece in antibodies • Illustrate the structure of immunoglobulins with labellings 	Lecture	Lecture hall 1	60 minutes	Mr. Jamal	BCQs
BIURET TEST <ul style="list-style-type: none"> • Recall the structure of peptide bond • Detect the presence of proteins in the given sample by Biuret test • Describe the principle of the reaction taking place in the experiment. 	Practical	Biochemistry lab	120 minutes	Dr. Farhan / Ms. Nazish	OSPE



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

HEAT COAGULATION TEST (DETECTION OF PROTEINS PRACTICAL) <ul style="list-style-type: none">Record the observation of sample and control in the experiment.Identify coagulable and non-coagulable proteinsDetect the presence of heat coagulable proteins in the given sample by heat coagulation test.Describe the principle of the reaction taking place in the experiment.Record the observation of sample and control in experiment	Practical	Biochemistry lab	120 minutes	Dr. Farhan / Ms. Nazish	OSPE
--	-----------	------------------	-------------	-------------------------	------



BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD

<p>SALT SATURATION TEST</p> <ul style="list-style-type: none"> • Detect the presence of albumin and globulin in the given sample of experiment • Name the reagents to be used in the experiment. • Describe the principle of the reaction taking place in the experiment. • Record the observations of the sample and control in the experiment. • Detect the presence of globulin in the given sample by half saturation test. • Detect the presence of albumin by full saturation test. 	<p>Practical</p>	<p>Biochemistry Lab</p>	<p>120 minutes</p>	<p>Dr. Farhan / Ms. Nazish</p>	<p>OSPE</p>
--	------------------	-------------------------	--------------------	--------------------------------	-------------

DEPARTMENT OF ANATOMY
EMBRYOLOGY



BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD

By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
HEMATOGENESIS <ul style="list-style-type: none"> • Define hematopoiesis. • Identify and Describe the sites and source of hemopoiesis before and after birth • Differentiate stem / pluripotent cells, progenitor and precursor (blasts) cells • Explain the development of various types of blood cells 	Lecture	Lecture hall 1	60 minutes	Dr. Rashid	MCQ, SEQ, OSPE, Viva
INTRODUCTION TO LYMPHOID TISSUE AND IMMUNE SYSTEM AND HISTOLOGY OF LYMPH NODE AND THYMUS <ul style="list-style-type: none"> • Understand the immune system and 	Lecture	Lecture hall 1	60 minutes	Dr. Inayat	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>lymphoid tissue.</p> <ul style="list-style-type: none"> • Differentiate between central lymphoid organs and peripheral lymphoid organs. • Identify the structure and function of lymph nodes. • Identify the structure, function and histological appearance of thymus. 					
<p>HISTOLOGY OF TONSIL AND SPLEEN</p> <ul style="list-style-type: none"> • Define locations of tonsils. • Describe histological features of tonsils. • Enlist functions of tonsils. • Enlist histological features of spleen. 	Lecture	Lecture hall 1	60 minutes	Dr. Inayat	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Enumerate Functions of spleen. 					
--	--	--	--	--	--

DEPARTMENT OF PATHOLOGY					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
RBC DISORDERS-1 <ul style="list-style-type: none"> Brief description of components and functions of blood Definition and classification of anemias Definition and etiology of iron deficiency anemia Megaloblastic anemia, G6PD deficiency 	Lecture	Lecture hall 1	60 minutes	Dr. Rozina Khan	MCQ, SEQ, OSPE, Viva
RBC DISORDERS-2 <ul style="list-style-type: none"> Brief description of structure and function of normal hemoglobin Enumerate the types of 	Lecture	Lecture hall 1	45 minutes	Dr. M. Rizwan	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<p>abnormal hemoglobins</p> <ul style="list-style-type: none"> • Definition and etiology of thalassemia, sickle cell anemia 					
<p>WBC DISORDERS</p> <ul style="list-style-type: none"> • Brief description of quantitative and qualitative disorders and related terminologies • Brief description of WBC cancer terminologies and types 	Lecture	Lecture hall 1	45 minutes	Dr. Maeesa Sajeel	MCQ, SEQ, OSPE, Viva
<p>PLATELET DISORDER</p> <ul style="list-style-type: none"> • Brief description of common platelet disorders and related terminologies • Brief description of hemophilia 	Lecture	Lecture hall 1	60 minutes	Dr. Iram Nazir	MCQ, SEQ, OSPE, Viva

DEPARTMENT OF FORENSIC MEDICINE					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

BLOOD AS TRACE EVIDENCE <ul style="list-style-type: none"> • Detail the Types of Blood Group Systems. • Differentiate between Human & Animal Blood. 	Lecture	Lecture hall 1	60 minutes	Dr. Rafay A. Siddiqui	MCQ, SEQ,
--	---------	----------------	------------	-----------------------	------------------

DEPARTMENT OF PEARLS

By the end of lecture/module, first professional MBBS student will be able to:

TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
LECTURE 1 <ul style="list-style-type: none"> • Discuss ways for stress management LECTURE 2 <ul style="list-style-type: none"> • Discuss different test taking skills 	Lecture	Lecture hall 1		Dr. Talal Dr. Saima	Formative

DEPARTMENT OF FAMILY MEDICINE

By the end of lecture/module, first professional MBBS student will be able to:

TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
.BLOOD <ul style="list-style-type: none"> • Discuss common symptoms associated with anaemia. • Classify anaemia. • Role of family physician in blood related disorders. 	Lecture	Lecture hall 1	60 minutes	Dr. Faisal Ahmed	MCQ



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

DEPARTMENT OF RESEARCH					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
CLASSIFICATION OF VARIABLES-1 <ul style="list-style-type: none"> Define the types of variables 	Lecture	Lecture hall 1		Dr. Munir Ahmed Sheikh	Formative
CLASSIFICATION OF VARIABLES- 2 <ul style="list-style-type: none"> Explain the differences between various types of variables 	Lecture	Lecture hall 1		Dr. Munir Ahmed Sheikh	Formative
REINFORCEMENT OF THE PREVIOUS LECTURE <ul style="list-style-type: none"> Define the types of variables Explain the differences between various types of variables 	Lecture	Lecture hall 1		Ms. Maria Rahim	Formative

DEPARTMENT OF COMMUNITY MEDICINE					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
Importance of Blood in Public Health <ul style="list-style-type: none"> Introduction and functions of blood. 	Lecture	Lecture hall 1	45 minutes	Dr. Muneer Ahmed	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> The importance of blood. Blood disorders and Public Health. 					
Importance of Blood in Public Health <ul style="list-style-type: none"> Blood disorders and Public Health. Goal: Prevent illness and disability related to blood disorders. Goal: Prevent illness and disability related to blood disorders. 	Lecture	Lecture hall 1	45 minutes	Dr. Muneer Ahmed	MCQ, SEQ, OSPE, Viva

DEPARTMENT OF ISLAMIAT					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

Basic Concepts of Quran <ul style="list-style-type: none"> Describe the concepts of Quran Explain in detail the verses of Surah Hujurat (Verses of Surah Al-Hujurat Related to Adab Al-Nabi (Verse No. 1-18)). 	Lecture	Lecture hall 1	45 minutes	Madam Uzma Waseem	SEQ
---	---------	----------------	------------	-------------------	-----

<p align="center">DEPARTMENT OF MEDICINE</p> <p>By the end of lecture/module, first professional MBBS student will be able to:</p>					
TOPIC	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
IRON DEFICIENCY ANEMIA <ul style="list-style-type: none"> Describe etiology and pathogenesis of Iron deficiency anemia 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva
IRON DEFICIENCY ANEMIA <ul style="list-style-type: none"> Restate clinical features and investigations 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

required for diagnosis					
MEGALOBLASTIC ANEMIA <ul style="list-style-type: none"> Discuss pathophysiology of megaloblastic anemia Restate clinical features and investigations required for diagnosis of megaloblastic anemia 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva
MEGALOBLASTIC ANEMIA <ul style="list-style-type: none"> Review the treatment of Megaloblastic anemia 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva
HEMOLYTIC ANEMIA <ul style="list-style-type: none"> Describe classification and pathogenesis of hemolytic anemias Demonstrate clinical findings with which patient present including thalassemia, sickle cell anemia, G6PD deficiency, autoimmune 	Lecture	Anatomy lecture hall	45 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

hemolytic anemia and hereditary spherocytosis					
HEMOLYTIC ANEMIA <ul style="list-style-type: none"> • Prescribe Investigation to diagnose the disease and design a treatment plan 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva
THROMBOCYTOPENIA <ul style="list-style-type: none"> • Review etiology and pathogenesis of thrombocytopenia • Demonstrate clinical findings of thrombocytopenia • Discuss investigations required for diagnosis and possible treatment option 	Lecture	Anatomy lecture hall	60 minutes	Dr. Masooda Fatima	MCQ, SEQ, OSPE, Viva

DEPARTMENT OF PHARMACOLOGY					
By the end of lecture/module, first professional MBBS student will be able to:					
TOPIC AND OBJECTIVES	TEACHING STRATEGY	LOCATION	DURATION	FACILITATOR	ASSESSMENT
OVERVIEW OF PHARMACOLOGY OF ANEMIA	Lecture	Lecture hall 1	60 minutes		MCQ, SEQ



BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD

<ul style="list-style-type: none"> Describe the physiology of anemia. Explain the pathophysiology of anemia. Discuss and understand the mechanistic pharmacology of anemia. 					
<p>OVERVIEW OF PHARMACOLOGY OF BLOOD COAGULATION DISEASE</p> <ul style="list-style-type: none"> Describe the physiology of blood coagulation disease. Explain the pathophysiology of blood coagulation disease. Discuss and understand the mechanistic pharmacology of blood coagulation disease. 					

<p align="center">DEPARTMENT OF SURGERY</p>					
<p>By the end of lecture/module, first professional MBBS student will be able to:</p>					
<p>TOPIC AND OBJECTIVES</p>	<p>TEACHING</p>	<p>LOCATION</p>	<p>DURATION</p>	<p>FACILITATOR</p>	<p>ASSESSMENT</p>



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

	STRATEGY				
COMPONENTS OF BLOOD: <ul style="list-style-type: none"> • Enlist basic components of blood. • Describe the adequate storage technique and shelf life of components of blood. • Knows the indications of different blood components. 	Lecture	Lecture hall 1	60 minutes	Dr. Sidra	MCQs, SEQs
BLOOD TRANSFUSION: <ul style="list-style-type: none"> • Describe different types of blood groups • 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 • Describe the antigens and antibodies of the Rh system • Describe the principles of blood transfusion 	Lecture	Lecture hall 1	45 minutes	Dr. Sidra	MCQs, SEQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

<ul style="list-style-type: none"> Enlist the complications of blood transfusion 					
<p>OBSTRUCTIVE JAUNDICE</p> <ul style="list-style-type: none"> Define jaundice Classify various types of jaundice and their causes. Define obstructive jaundice To summarize the basic anatomy and physiology of the biliary system. To demonstrate the pathophysiology and complications of obstructive jaundice Enlist the common causes of obstructive jaundice in a sequential manner. 	Lecture	Lecture hall 1	45 minutes	Dr. Sidra	MCQs, SEQs
<p>SPLEENOMEGALY AND COMPLICATIONS OF SPLENECTOMY:</p> <ul style="list-style-type: none"> Define splenomegaly Enumerate the causes of splenomegaly Enlist the indication of splenectomy Describe the complication of splenectomy 	Lecture	Lecture hall 1	60 minutes	Dr. Sidra	MCQs, SEQs



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

DISORDERS OF LYMPHATICS, LYMPHADENITIS, LYMPHANGITIS, LYMPHEDEMA: <ul style="list-style-type: none">• Define lymphatics, lymphadenitis, lymphangitis, lymphedema• Enlist the causes of these conditions.	Lecture	Lecture hall 1	45 minutes	Dr. Sidra	MCQs, SEQs
ORGAN TRANSPLANTATION: <ul style="list-style-type: none">• Define organ transplantation• Enumerate the indication of organ transplants• Describe different types of organ transplant.	Lecture	Lecture hall 1	45 minutes	Dr. Sidra	MCQs, SEQs

CASE-BASED LEARNING (CBL)

By the end of lecture/module, first professional MBBS student will be able to:

1. IMMUNITY

1. What is the physiological basis of the body's immune response?
2. What are the different types of White Blood Cells?
3. Which WBCs are involved in acute bacterial infections and what is their role?
4. What is the physiological basis of inflammation?
5. How do infections cause fever?
6. How do infections cause tachycardia?
7. What is the cause of anaemia?
8. What is the cause of leukocytosis and deranged DLC?
9. Describe the mechanism of leukocytosis?



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

2. CARBONMONOXIDE POISONING

1. Dynamics of oxygen transport by the blood.
2. Understanding the oxygen-Hb dissociation curve and effect of CO on this curve.
3. Forms of transport of respiratory gases in blood including O₂, CO₂, CO and Nitrogen.
4. Learning the physiological basis of treatment with hyperbaric oxygen.
5. Compare the skin color of the patient in cyanosis, CO poisoning and methemoglobinemia.
6. Pathophysiology of CO poisoning.
7. Relate the symptoms to CO poisoning. (Clinical)
8. Which complex protein of electron transport chain is inhibited by carbon monoxide?
9. Why is oxygen carrying capacity is reduced in carbon monoxide poisoning?

TIME TABLES FOLLOWED IN BLOOD MODULE:

BAQAI MEDICAL COLLEGE

WEEK 1



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

DAY	8:30-9:30	9:30-10:15	10:15 - 10:30	10:30-11:30	11:30-12:30	12:30-1:15	1:15-1:30	1:30-3:30
19-9-22 MONDAY	PHYSIOLOGY Introduction of Blood	PEARL		PRACTICAL PHYSIO Hb Estimation BIOCHEM: Detection of A.Acids (Demo) ANATOMY lymphoid tissue		BIOCHEMISTRY Biosynthesis of porphyrins 1		PHYSIOLOGY Plasma and its functions
20-9-22 TUESDAY	ANATOMY Component of immune system and lymphoid tissue	BIO ETHICS		PRACTICAL PHYSIO Hb Estimation BIOCHEM: Detection of A.Acids (Demo) ANATOMY lymphoid tissue		C.MED		PHYSIOLOGY SGT Blood and plasma review
21-9-22 WEDNESDAY	PHYSIOLOGY Introduction to Erythrocytes	PHYSIOLOGY Erythropoiesis		PRACTICAL PHYSIO Hb Estimation BIOCHEM: Detection of A.Acids (Demo) ANATOMY lymphoid tissue		PHYSIOLOGY Functional components of hemoglobin		ANATOMY central and peripheral lymphoid organs-
22-9-22 THURSDAY	SURGERY	BIOCHEMISTRY Biosynthesis of porphyrins 2		MEDICINE	BEHAVIOUR SCIENCES	SDL		PHYSIOLOGY SGT RBC functions and abnormalities
23-9-22 FRIDAY	BIOCHEMISTRY Porphyrias	ANATOMY Structure, location and Embryology of spleen		SDL	ANATOMY HISTOLOGY Of spleen	12-30- 1:00 ISLAMIAT		ANATOMY LRC

WEEK 2



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

DAYS	8:30-9:30	9:30-10:15	10:15-10:30	10:30-11:30	11:30-12:30	12:30-1:15	1:15-1:30	1:30-3:30
26-9-22 MONDAY	RESPIRATION			MODULE				EXAM
27-9-22 TUESDAY	BIOCHEMISTRY Metabolism of Iron	MEDICINE		PHYSIO RBC COUNT BIOCHEM Biuret test ANATOMY Histology of spleen		PHYSIOLOGY Introduction to leucocytes, classification of leucopoiesis		BIOCHEMISTRY Haemoglobin Synthesis
28-9-22 WEDNESDAY	PHYSIOLOGY Functions of leucocytes	ANATOMY Embryology & gross anatomy of Thymus		PRACTICAL PHYSIO RBC COUNT BIOCHEM Biuret test ANATOMY Histology of spleen		SURGERY		PRACTICAL PHYSIO RBC COUNT BIOCHEM Biuret test ANATOMY Histology of spleen
29-9-22 THURSDAY	PHYSIOLOGY Immunity and its types	BIOCHEMISTRY Metabolism of copper		SDL	BIOCHEMISTRY Formative Assessment			PHYSIOLOGY Acquired immunity
30-9-22 FRIDAY	PHYSIOLOGY Cell mediated immunity-I	PHARMACOLOGY		BIOCHEMISTRY Vitamin B9 (folic acid)	INFECTION CONTROL	12:30-1:00 ISLAMIAT		PHYSIOLOGY Cell mediated immunity-II, Innate Immunity



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

WEEK 3

DAY	8:30-9:30	9:30-10:15	10:15 - 10:30	10:30-11:30	11:30-12:30	12:30-1:15	1:15 - 1:30	1:30-3:30
3-10-22 MONDAY	PATHOLOGY	BIOCHEMISTRY Vitamin B12		PRACTICAL BIOCHEM Heat coagulation PHYSIO WBC COUNT ANATOMY histology of thymus		MEDICINE		BIOCHEMISTRY Vitamin E and K
4-10-22 TUESDAY	ANATOMY gross anatomy of Lymph nodule/Lymph vessels	SURGERY		PRACTICAL BIOCHEM Heat coagulation PHYSIO WBC COUNT ANATOMY histology of thymus		PATHOLOGY		PHYSIOLOGY WBC functions and abnormalities
5-10-22 WEDNESDAY	PHYSIOLOGY HEMOSTASIS	BEHAVIOURAL SCIENCES		PRACTICAL BIOCHEM Heat coagulation PHYSIO WBC COUNT ANATOMY histology of thymus		SDL		BIOCHEMISTRY Formative Assessment



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

6-10-22 THURSDAY	BIOCHEMISTRY Heme degradation	C.MED		FAMILY MED	PHYSIOLOGY Introduction of Thrombocytes, Coagulation-I	SDL		ANATOMY PRESENTATION
7-10-22 FRIDAY	PHYSIOLOGY Coagulation-II	BIOCHEMISTRY Jaundice and classification of jaundice		MEDICINE	SURGERY	12:30-1:00 ISLAMIAT		PHYSIOLOGY Self-assessment

WEEK 4

DAY	8:30-9:30	9:30-10:15	10:15-10:30	10:30-11:30	11:30-12:30	12:30-1:15	1:15-1:30	1:30-3:30
10-10-22 MONDAY	BIOCHEMISTRY Liver Function Tests	PHYSIOLOGY O-A-B BLOOD TYPES-I		BIOCHEM : Saturation of proteins (Demo) PHYSIO B.T & C.T (SKILL LAB) ANATOMY SGT		PATHOLOGY		ANATOMY LRC
11-10-22 TUESDAY	PHYSIOLOGY O-A-B BLOOD TYPES-II	MEDICINE		BIOCHEM : Saturation of proteins (Demo) PHYSIO B.T & C.T (SKILL LAB) ANATOMY SGT		SDL		PHYSIOLOGY Formative Assessment
12-10-22 WEDNESDAY	BIOCHEMISTRY Plasma Proteins1	PHARMACOLOGY		BIOCHEM : Saturation of proteins (Demo) PHYSIO B.T & C.T (SKILL LAB) ANATOMY SGT		BIOETHICS		PHYSIOLOGY Rh blood types



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

13-10-22 THURSDAY	PHYSIOLOGY Tissues & organ transplantation	FORENSIC MEDICINE		SDL	CBL		ANATOMY embryology & gross anatomy of appendix
14-10-22 FRIDAY	BIOCHEMISTRY Plasma Proteins 2	ANATOMY HISTOLOGY Of thymus		MEDICINE	I-T	12:30-1:00 BEHAVIO RAL SCIENCES	PHYSIOLOGY SGT Thrombocytes functions abnormalities

WEEK 5

DAY	8:30-9:30	9:30-10:15	10:15 - 10:30	10:30-11:30	11:30- 12:30	12:30-1:15	1:15- 1:30	1:30-3:30
17-10-22 MONDAY	BIOCHEMI STRY Immunoglob ulins 1	SURGERY		BIOCHEM:Half &Full saturation PHYSIO Blood grouping (SKILL LAB) ANATOMY SGT		PSYCOL OGY		PHYSIOLOGY Self-assessment
18-10-22 TUESDAY	COM-MED	PHYSIOLOGY SGT Coagulation pathways		BIOCHEM :Half &Full saturation PHYSIO Blood grouping (SKILL LAB) ANATOMY SGT		RESEARC H		BIOCHEMISTRY Formative Assessment



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

19-10-22 WEDNESDAY	PATHOLOGY	ANATOMY embryology & gross anatomy of tonsils		BIOCHEM :Half & Full saturation PHYSIO Blood grouping (SKILL LAB) ANATOMY SGT	SURGERY		ANATOMY PRESENTATION
20-10-22 THURSDAY	BIOCHEMISTRY Immunoglobulins 2	BEHAVIORAL SCIENCES		SDL	CBL		PHYSIOLOGY SGT Blood review
21-10-22 FRIDAY	PHYSIOLOGY SGT Quiz practice	ANATOMY HISTOLOGY Appendix & tonsils		ANATOMY LRC	MEDICINE	12:30-1:00 ISLAMIA T	ANATOMY QUIZ

REFERENCE BOOKS AND OTHER READING RESOURCES:

Gross Anatomy	BD Chaurasia's Handbook of GENERAL ANATOMY Netter Atlas of Human Anatomy
Embryology	Langman's Embryology
Histology	Laiq Hussain Histology



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

Physiology	Guyton and Hall. Textbook of Medical Physiology, 13 th Edition. Ganong's Review of Medical Physiology, 24 th Edition.
Pathology	Robin`s Basic Pathology-10 th Edition
Pharmacology	<p><u>Essential</u></p> <ul style="list-style-type: none"> • Bertram G. Katzung. Basic and Clinical Pharmacology, 14th Edition. 2017. • Katzung and Trevor's pharmacology Examination and Board Review 11th Edition 2015. <p><u>Recommended</u></p> <ul style="list-style-type: none"> • Lippincott`s illustrated review of Pharmacology. 6th Edition. 2015.
Islamiat	<ul style="list-style-type: none"> • Hameed ullah Muhammad, “Emergence of Islam” , IRI, Islamabad, “Muslim Conduct of State” and "Introduction to Islam". • Hussain Hamid Hassan, “An Introduction to the Study of Islamic Law” leaf Publication Islamabad, Pakistan. • Abdul Qayyum Natiq, "Sirat-E-Mustaqim. • Farkhanda Noor Muhammad, "Islamiat". • Dr. Muhammad Zia-ul-Haq, “Introduction to Al Sharia Al Islamia” Allama Iqbal Open University, Islamabad (2001).

ASSESSMENT METHODS:

THEORY:

❖ **Essay Questions- Short Essay Questions (SEQs)** are used to assess objectives covered in each module.

- 6 SEQs are given (no choice).



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

- Time duration 90 minutes.
- Students write their answer in an answer sheet.

❖ **Best Choice Questions (BCQs)** also known as MCQs (Multiple Choice Questions) are used to assess objectives covered in each module.

- A BCQ has a statement or clinical scenario followed by four options (likely answer).
- Students after reading the statement/scenario select ONE, the most appropriate response from the given list of options.
- Correct answer carries one mark, and incorrect 'zero mark'. There is no negative marking.
- Students mark their responses on specified computer-based/OMR sheet designed for BMC, BMU.

❖ **OSPE/OSCE: Objective Structured Practical/Clinical Examination:**

- Each student will be assessed on the same content and have same time to complete the task.
- Comprise of 12-25 stations.
- Each station may assess a variety of clinical tasks; these tasks may include history taking, physical examination, skills and application of skills and knowledge.
- Stations are observed, unobserved, interactive and rest stations.
- Observed and interactive stations will be assessed by internal or external examiners.
- Unobserved will be static stations in which there may be an X-ray, Labs reports, pictures, clinical scenarios with related questions for students to answer.
- Rest station is a station where there is no task given and in this time student can organize his/her thoughts.

INTERNAL EVALUATION:

- Students will be assessed to determine achievement of module objectives through the following:
 - o **Module Examination:** will be scheduled on completion of each module. The method of examination comprises theory exam which includes BCQs and OSPE (Objective Structured Practical Examination).
- **Graded Assessment of students by Individual Department:** Quiz, viva, practical, assignment, small group activities such as CBL, online assessment, ward activities, examination, and Practical journals.
- Marks of both modular examination and graded assessment will constitute 20% weightage which will be added to Annual Examination.



**BAQAI MEDICAL UNIVERSITY
BAQAI MEDICAL COLLEGE
FIRST PROFESSIONAL M.B.B.S.
MODULAR GUIDE 2022 - BLOOD**

FORMATIVE ASSESSMENT:

- Individual department may hold quiz or short answer questions to help students assess their own learning.
- The marks obtained are not included in the internal evaluation.

**More than 75% attendance is
needed to sit for the modular and
final examinations**