STUDY GUIDE

Hematopoietic & Lymphatic Module (1st Year M.B.B.S.)

(as per UHS guidelines)



AVICENNA MEDICAL COLLEGE

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MODULE COORDINATOR:	Dr Ali Iftikhar
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PHARMACOLOGY	Prof. Najma Naz	Dr Warda

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STUDY GUIDE DEVELOPMENT COMMITTEE

Name	Designation	Signatures
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Prof. Najma Naz	Pharmacology
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Prof Muzzamil	Medicine & allied

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how the academic program for each module in a block-wise manner is 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 organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Defines the learning 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, practical, tutorial, case based learning and problem-based learning that will be implemented to achieve the module objectives.
- Provides a list of learning resources such as book references with page numbers, computer assisted learning programs, videos, web- links, and journals for students to consult in order to maximize their learning.
- Provides information on the assessment methods for formative (module exams) and summative assessment (block exams) of the module and Block examinations.
- Highlights the criteria for the student's overall performance.

- Focuses on information pertaining to examination policy, rules and regulations of Avicenna Medical College and the University Of Health Sciences (UHS).

CURRICULUM FRAMEWORK

Students will experience an integrated curriculum for MBBS as provided by the UHS.

INTEGRATED CURRICULUM comprises of system-based modules such as foundation, H&L etc in the Blocks, which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students are able to have better understanding of basic sciences when they repeatedly learn in relation to clinical examples.

Case-based discussions, problem-based learning, computer-based assignments, early exposure to clinics, wards, and skills acquisition in skills lab and physiotherapy department are characteristics of integrated teaching program

LEARNING METHODOLOGIES

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

i. Interactive Lectures
ii. Hospital/Clinic visits
iii. Small Group Discussion
iv. Case- Based Learning
v. Problem-based learning
vi. Practicals
vii. Skills session
viii. E-Learning
ix. Self-Directed Study

INTERACTIVE LECTURES: In large group, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

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

SMALL GROUP DISCUSSION (SGD): This format helps students to clarify concepts acquire skills or attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials and self-study. The facilitator role is to ask probing questions, summarize, or re phrase to help clarify concepts.

TEAM-BASED LEARNING: A small group discussion format where learning is focused around a series of questions based on a clinical scenario. Students' discuss and answer the questions applying relevant knowledge gained in clinical and basic health sciences during the module.

a) **Preparation before class:** Students must complete preparatory materials before a class or the start of the module. Materials may be text, visual or other, and set at a level that is appropriate to the students and the course.

b) **In-class Readiness Assurance Testing:** Students complete an individual readiness assurance test (IRAT), consisting of 5 to 20 multiple choice questions. After submitting their individual answers, and they take the same test, the team RAT (TRAT), with their team. All members of each team share the same TRAT score, and both IRAT and TRAT scores count toward the students' grades.

c) **Reflective Writing:** Students will write reflective essays for the activities and tasks of the Professionalism, Ethics, Research and Leadership (PERLs) programme for each module and block.

d) The students will develop a Portfolio of the PERLs activities and tasks as assignments and reflective essay

e) **Instructor Feedback**: The instructor reviews material from the RAT that seems to be difficult for students.

f) **In-class application focused exercise:** The remainder of the session is taken up with exercises that help students learn how to apply and extend the knowledge that they have pre-learned and tested. Teams are given an appropriate problem or challenge, and must arrive at a consensus to choose a "best" solution out of options provided. Teams then display their answer choice, and the educator facilitates a classroom discussion between teams to explore the topic and the possible answers to the problem.

PRACTICAL: Basic science practicals related to anatomy, biochemistry, pathology, pharmacology and physiology are scheduled for student learning.

CLINICAL SKILLS SESSION: Clinical Skills relevant to respective module are observed and practiced where applicable in hospital settings, clinical skills laboratory or Department of Physiotherapy.

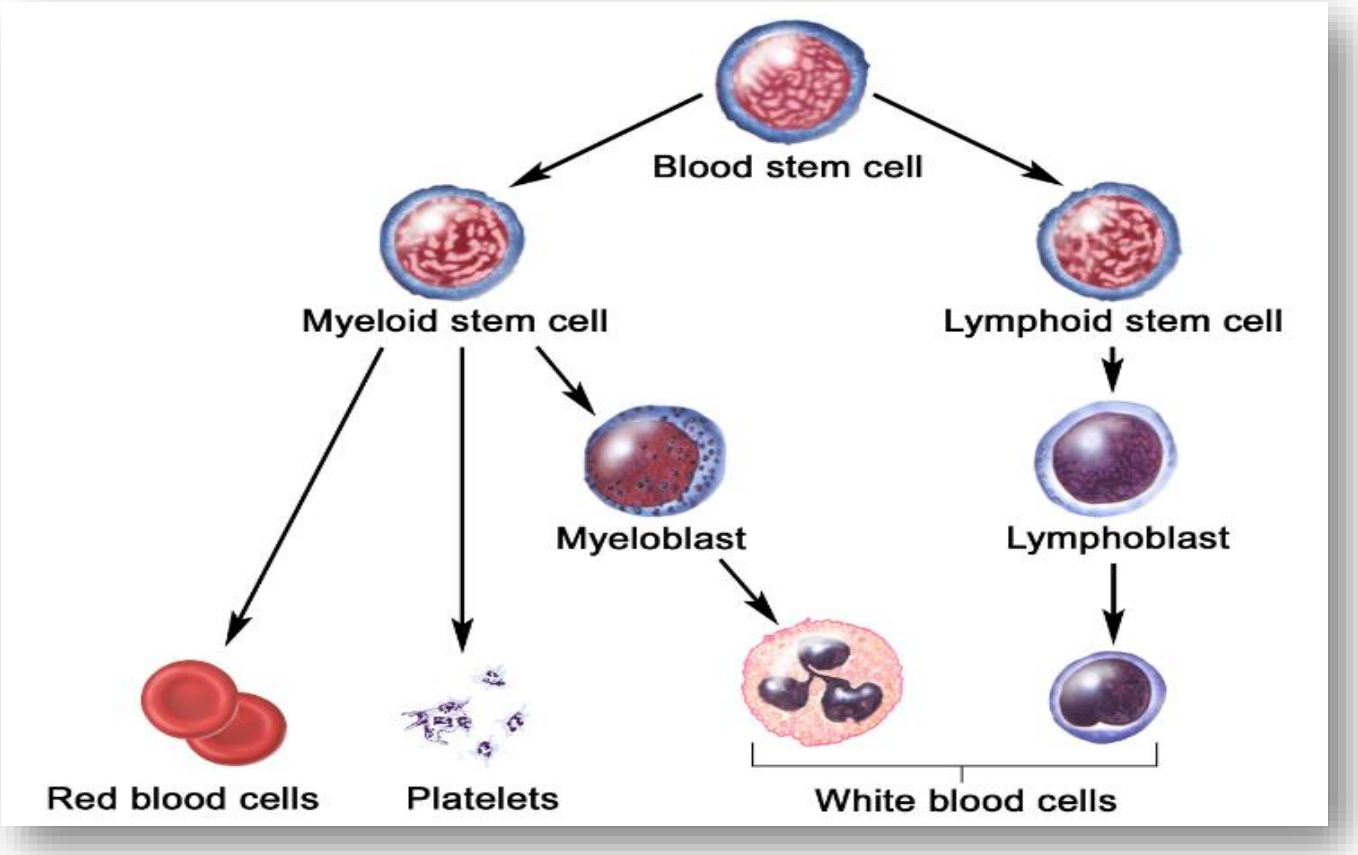
SELF DIRECTED STUDY: Students' assume responsibilities of their own learning through individual study, sharing and discussing with peers, seeking information from Learning Resource Center, teachers and resource persons within and outside the college. Students can utilize the time within the college scheduled hours of self-study.

E-LEARNING: E-Learning is a strategy by which learning occurs through the utilization of electronic media, typically the Internet. The basic aspects of medical professionalism and ethics will be addressed through an e-learning course.

Hematopoietic & Lymphatic Module

Module rationale:

"Blood is Life". Unlike any other organ, components of blood and immunity reflect/reveal disease processes in other organs as well. Therefore, studying blood is like opening a book to all aspects of medicine. Hence, this module has been designed to enable students to have a basic understanding about



the normal structure, function and biochemistry of blood, immune and lymphoid systems. Not only that, but students would also learn, when normal physiology and composition of blood and immune system is disturbed, what disorders result in our community. Particular emphasis has been given to incorporate deranged laboratory findings into the clinical problem solving.

Module Outcomes

1. Explain the function of all the organs / structures involved in this system and the mechanisms controlling them. (Spleen, lymph nodes, thymus, bone marrow, RBC's, WBCs, and platelets

2. Explain the aetiology and pathogenesis of common blood & lymphatic diseases, particularly those of importance in Pakistan.

3. Explain the rationale for the use of common therapeutic agents for the diseases related to Blood and immunity.

4. Describe the role of immunity in the body

5. Discuss the working & uses of laboratory instruments in diagnostic lab visit

6. Relate red cell indices with health and disease

7. Recognize ABO/RH blood grouping system

8. Describe the role of Reticulo-endothelial system in the body

9. Describe the events of hemostasis

10. Extrapolate the biochemical aspects of plasma proteins

11. Discuss the pharmacological treatment of iron deficiency anemia

12. Discuss Blood composition and function

13. Discuss the role of liver in haemolytic anaemia

14. Practice history taking of a patient presented with blood disorders

THEMES

1. Red blood cell

2. Platelets

3. White blood cell

Clinical Relevance

- Aplastic anemia
- Hemolytic anemia
- Blood loss anemia
- Nutritional anemia
- Polycythemia
- Hemoglobinopathies
- Jaundice
- Acute and chronic lymphocytic and myelogenous Leukemia
- Allergy (Type I, Type II & Type III)

Curriculum of individual subjects

NORMAL STRUCTURE

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL-001	Hematopoietic & Lymphoid Tissue	Identify and describe the components of the Hematopoietic & Lymphoid Tissue and their function	Lecture	Anatomy	Dr. Ijaz	KLM Moore Clinal Anatomy, 8 ed. Pg. No 37-45
2	HL-001	Hematopoietic & Lymphoid Tissue	Location, coverings, relations of Spleen, Origin, course branches and distribution of Splenic artery	Lecture	Anatomy	Dr. Ijaz	KLM Moore Clinal Anatomy, 8 ed. Pg. No 263-265
3	HL-001	Hematopoietic & Lymphoid Tissue	Venous drainage of Spleen, Portal vein formation, tributaries, and area of drainage	Lecture	Anatomy	Dr. Ijaz	KLM Moore Clinal Anatomy, 8 ed. Pg. No 366
4	HL-001	Hematopoietic & Lymphoid Tissue	Location and relations of Thymus. Age related changes in Thymus	Lecture	Anatomy	Dr. Ijaz	KLM Moore Clinal Anatomy, 8 ed. Pg. No 161, 176, 1046
5	HL-002	Developmental Anatomy of Spleen	Intrauterine Development of spleen	Lecture	Anatomy	Dr. Kalsoom	KLM Embryology, 10th ed. Pg. No 221-222
6	HL-003	Histological features of spleen	Light & Electron microscopic structure of Spleen	Lecture	Anatomy	Dr. Prof Razia	Medical Histology By Laiq Hussain 6th ed Pg. No 153-155

7	HL-003	Histological features of thymus	Light & Electron microscopic structure of Thymus	Lecture	Anatomy	Dr. Prof Razia	Medical Histology By Laiq Hussain 6th ed Pg. No 146
8	HL-003	Histological features of lymph node and Tonsils	Light & Electron microscopic structure of Lymph nodes and tonsils	Lecture	Anatomy	Dr. Prof Razia	Medical Histology By Laiq Hussain 6th ed Pg. No 149-152, 156-157157
9	HL-003	Histological features of Malt and Appendix	Light & Electron microscopic structure of MALT including Appendix	Lecture	Anatomy	Dr. Prof Razia	Medical Histology By Laiq Hussain 6th ed Pg. No 156- 213
10	HL-P-01	Histological features of spleen	L & E microscopic structure of Spleen	Practical	Anatomy	Dr. Shaista	Histology Manual
11	HL-P-01	Histological features of thymus	L & E microscopic structure of Thymus	Practical	Anatomy	Dr. Shaista	Histology Manual
12	HL-P-01	Histological features of lymph node	L& E microscopic structure of Lymph nodes and tonsils	Practical	Anatomy	Dr. Shaista	Histology Manual
13	HL-P-01	Histological features of Appendix	L & E microscopic structure of MALT including Appendix	Practical	Anatomy	Dr. Shaista	Histology Manual

NORMAL FUNCTION

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL-004 HL-005	Anemia polycythemia "	Define anemia Classify anemia on the basis of morphology and cause Discuss the effects of anemia on the body. Define polycythemia	Lecture	Physiology	Dr Shaheena	Guyton & Hall 14th edition Ch 33 pg no: 452-453
2	HL-006	hemostasis	Define hemostasis Describe the mechanisms by which hemostasis is secured	Lecture	Physiology	Dr Faiza	Guyton & Hall 14th edition Ch 33 pg no: 453-455
3	HL-007	Platelets	Discuss the characteristics and functions of platelets Explain the mechanism of formation of platelet plug	Lecture	Physiology	Dr Shaheena	Guyton & Hall 14th edition Ch 33 pg no: 455-457

4	008	Platelets/ Coagulation	Discuss the characteristics and functions of plateletsEx	Lecture	Physiology	Dr Nida	Guyton & Hall 14th edition Ch 33 pg no: 458-460
5	HL-009	Coagulation factors/	Explain the role of Calcium ions in Intrinsic and Extrinsic	Lecture	Physiology	Dr Nida	Guyton & Hall 14th edition Ch 33 pg no: 460-461
6	HL-010	Immunity	Define immunity. Classify immunity. Explain humoral immunity. Explain Innate immunity. Elaborate cell mediated immunity. Describe the structure of antigen and immunoglobulin. Describe the role of Helper T-cells in cell mediated immunity. Enlist the types of Immunoglobulins along with their functions.	Lecture	Physiology	Dr Afsheen	Guyton & Hall 14th edition Ch 33 pg no: 452-453
7	HL-010	Immunity	Explain the role of memory cells in enhancing antibody response (secondary response). Describe the mechanism of action of antibodies.	Lecture	Physiology	Dr Sadia	Guyton & Hall 14th edition Ch 37 pg no: 483
8	HL-010	Immunity	Elaborate the complement system.	Lecture	Physiology	Dr Sadia	Guyton & Hall 14th edition Ch 37 pg no: 483
9	HL-011	Tolerance	Elaborate Immune tolerance, Explain the process of clone selection during T cell processing	Physiology	Lecture	Dr Sadia	Guyton & Hall 14th edition Ch 37 pg no: 485-488
10	HL-012	Immunization	Discuss immunization. Define passive Immunity. Explain features and physiological basis of delayed reaction allergy. Explain features and physiological basis of Atopic Allergy. Explain features and physiological basis of Anaphylaxis, urticaria and Hay fever.	Physiology integrated with paediatrics	Lecture	Dr Omair Mazhar	Guyton & Hall 14th edition Ch37 pg no: 488-490
11	HL-013,HL-014	Transfusion	Discuss the pathophysiology, features and treatment of ABO and RH incompatibility a. Discuss the features and complications of mismatched blood transfusion reaction b. Elaborate the Transplantation of Tissues and Organs	Physiology integrated with pathology	Lecture	Dr Ujala Aymun	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629, lecture nothes

12	HL-015	Transplantation of tissues	Explain the process of tissue typing. Explain prevention of Graft Rejection by suppressing immune system	Physiology integrated with nephrology	Lecture	Dr Usman	Davidson, 25th edition page 345
13	HL-016	Hemoglobin and its types/ RBCs	Discuss the biochemical role and types of hemoglobin a) Differentiate Hemoglobin and myoglobin b) Explain oxygen dissociation curve of hemoglobin and myoglobin and factors regulating them c) Interpret CO toxicity on basis of sign and symptoms d) Explain the role of 2,3 BPG in fetal circulation	Biochemistry	Lecture	Dr Ali	Chapter 3, Page 25, Lippincott 8th edition
14	HL-017	Hemoglobinopathies/ RBCs/ Homeostasis	Discuss haemoglobinopathies and their biochemical and genetic basis with special emphasis on sickle cell anemia, Thalassemia and methemoglobinemia	Biochemistry	Lecture	Dr Ali	Chapter 3, Page 25, Lippincott 8th edition
15	HL-017	Anemias	Discuss the following types of anemia on the basis of signs and symptoms and laboratory data: a) Hypochromic microcytic b) Normochromic microcytic c) Normochromic normocytic d) Macrocytic (megaloblastic)	Biochemistry integrated with pathology	Lecture	Dr Zulfiqar Ali	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629
16	HL-018	Iron Metabolism/ RBCs	Explain the iron metabolism with mechanism of absorption and factors affecting it. a) Interpret Iron deficiency anemia on basis of given data and microscopic findings b) Interpret folic acid and cobalamin in relation to anemias on given data and microscopifindings c) Discuss biochemical role of pyridoxine and vitamin C in microcytic anemia	Biochemistry	Lecture	Dr Ali	Harper 30th edition, Chapter 52, page 673
17	HL-019	Heme Degradation/ RBCs	Discuss the degradation of heme in macrophages of reticuloendothelial system a) Describe the formation of bile pigments, their types and transport b) Discuss the fate of bilirubin	Biochemistry	Lecture	Dr Ali	Chapter 21, page 277, Lippincott 7th edition
18	HL-020	Hyperbilirubine	Discuss hyperbilirubinemias and their biochemical basis	Biochemistry	Lecture	Dr Ali	Chapter 21, page 277,

		mias / RBCs/ Blood Groups	a) Differentiate types of jaundice on basis of sign/symptoms and data b) Evaluate the genetic basis of jaundice on the basis of lab investigations				Lippincott 7th edition
19	HL-021	Plasma Proteins/ Homeostasis	Classify and Explain the biomedical importance of each class of plasma proteins	Biochemistry	Lecture	Dr Ali	Chapter 52, Page 668, Harper 30th edition
20	HL-022	Immunoglobulins/ WBCs/ Immunity	a) Explain the structure and biochemical role of immunoglobulins b) Describe the production, structure and functions of B cells, plasma cells, and antibodies (IgA, IgD, IgE, IgG, and IgM). c) Discuss the functions of the cytokines (ILs, TNFs, IFs, PDGF, and PAF). d) Interpret multiple myeloma on basis of given data	Biochemistry	Lecture	Dr Ali	Chapter 52, Page 668, Harper 30th edition
21	HL-023	Genetics	Explain and interpret pedigree of single gene defect i.e sickle cell anemia (Autosomal recessive) and Beta Thalessemia (x linked recessive)	Biochemistry	Lecture	Dr Ali	Harper 30th edition, Chapter# 39 Page# 462
22	HL-P-02	Practical Blood cells	concentration, Hematocrit and RBC Indices by	Physiology	Practical	Dr. Abeera	Practical Manual
23	HL-P-03	Practical Blood cells	Interpret the Total Leucocyte Count, Differential Leucocyte Count	Physiology	Practical	Dr. Abeera	Practical Manual
24	HL-P-04	Practical: Bleeding/	Determine Clotting Time./ Bleeding time	Physiology	Practical	Dr. Abeera	Practical Manual
25	HL-P-05	Jaundice & Anemias/RBCs/ Homeostasis	Interpret jaundice on the basis of estimation of bilirubin	Biochemistry	Practical	Dr Asad	Practical Manual
26	HL-P-06	Jaundice & Anemias/ RBCs/ Homeostasis	Perform estimation of ALT and interpret the findings	Biochemistry	Practical	Dr Hamza	Practical Manual
27	HL-P-07	Jaundice & Anemias/ RBCs/ Homeostasis	Perform estimation of AST and interpret the findings	Biochemistry	Practical	Dr Misbah	Practical Manual
28	HL-P-08	Jaundice & Anemias/ RBCs/ Homeostasis	Perform estimation of ALP and interpret the findings	Biochemistry	Practical	Dr Zahra	Practical Manual

29	HL-P-09	Jaundice & Anemias/ RBCs/ Homeostasis	Interpret graph based on oxy HB curve and 23 BPG Interpret different types of anemias & porphyrias on basis of s/s and data	Biochemistry	Practical	Dr Ayesha	Practical Manual

AGING (DERMATOLOGY)

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL-Ag-001	Platelet rich plasma therapy	a. Discuss the role of platelets and their constituents. b. Discuss the procedure of platelet rich plasma formation. c. Role of PRP in anti aging , wound healing in skin, hair and joints.	Lecture	Dermatology	Dr Zartaj Liaqat	PRP AND MICRONEEDLING IN AESTHETIC MEDICINE amelia k hauseuer. Derek H Jones pgs 3-13
2	HL-Ag-002	Glutathione	Discuss the molecular structure of glutathione. Highlight its role as a powerful antioxidant in anti aging.	Lecture	Dermatology	Dr Zartaj Liaqat	Sonthalia S, Daulatabad D, Sarkar R. Glutathione as a skin whitening agent: Facts, myths, evidence and controversies. Indian J Dermatol Venereol Leprol. 2016 May-Jun;82(3):262-72. doi: 10.4103/0378-6323.179088. PMID: 27088927.

PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL-026	Anemia	Describe the oral and parenteral iron preparations including their pharmacokinetics, uses, adverse effects Vitamin B12 preparations, Iron Antidotes HL-B008 Explain and interpret pedigree of single gene defect i.e. sickle cell anemia (Autosomal recessive) and Beta Thalassemia (x linked recessive) Genetics Should know the terms: Hematopoietic growth factors, their name, mechanism of actions , uses and adverse effects	Lecture	Pharmacology	Dr. Wardah Siddique	Katzung ed. 14, CH:33
2	HL-027	Anemias	a. Define and classify anemias according to underlying mechanism and MCV/MCH. b. Interpretation of anemias on the basis of peripheral blood smear and bone marrow findings.	Lecture	Pathology	Dr Zulfiqar Ali	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629
3	HL-027	Anemias	Discuss the causes and investigations of iron deficiency anemia and megaloblastic anemia.	Lecture	Pathology	Dr Ujala Aymun	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629
4	HL-027	WBC disorders	a. Classify benign and malignant disorders of WBCs. b. Discuss the causes of reactive leukocytosis. a. Classify bleeding disorders. b. Discuss first line laboratory investigations for bleeding disorders.	Lecture	Pathology	Dr Nabila Akram	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629

5	HL-027	Transfusion	Describe basic concept of blood grouping and acute hemolytic transfusion reaction.	Lecture	Pathology	Dr Ujala Aymun	Robbins and Cotran Pathologic Basis of Disease, 10th Edition, page 629

DISEASE BURDEN AND PREVENTION

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL-028	Anemia	Describe the nutritional aspects of iron deficiency anemia and psychological aspects of diseases	Lecture	Community medicine	Dr. M. Usman Sheikh	K.PARK 23rd Ed. PG# 623 & Pg# 820
	HL-030	Genetic diseases	Genetic counseling of parents				
2	HL-029	Communicable diseases	Enlist most common blood born diseases in Pakistan Describe the routes of spread of blood born diseases	Lecture	Community medicine	Dr. M. Usman Sheikh	K.Park 23rdEd. Pg # 210,343

DISEASE MANAGEMENT

No.	Code	Topic	Learning Objective	Teaching strategy	Department	Faculty members	References
1	HL 031	Anaemia	History of Thalassemia and sickle cell anaemia	Lecture	Medicine	Dr Humaira	Davidson's principles and practices of medicine 24th edition
2	HL 032	Anaemia and leukemia	Management strategy for anemia and leukemia	Lecture	Medicine	Dr zareen	Davidson's principles and practices of medicine 24th edition pg 932,963
3	HL 032	Bleeding disorders	Management strategy for bleeding disorders	Lecture	Medicine	Dr asim	Davidson's principles and practices of medicine 24th edition pg 937,980

CLINICAL SKILLS FOUNDATION (CSF)

Code	Topic	Specific learning objective	Log-book enteries
CSF-1-06	Venupuncture and blood collection	1. Detail the steps of drawing blood from a vein. Demonstrate safety precautions for disposal of syringes after drawing blood	2
CSF-1-07	Blood transfusion	Demonstrate the precautionary measures before making a blood transfusion. Detail the equipment required for transfusing blood	1

Professionalism, Ethics, Research, Leadership (H&L)

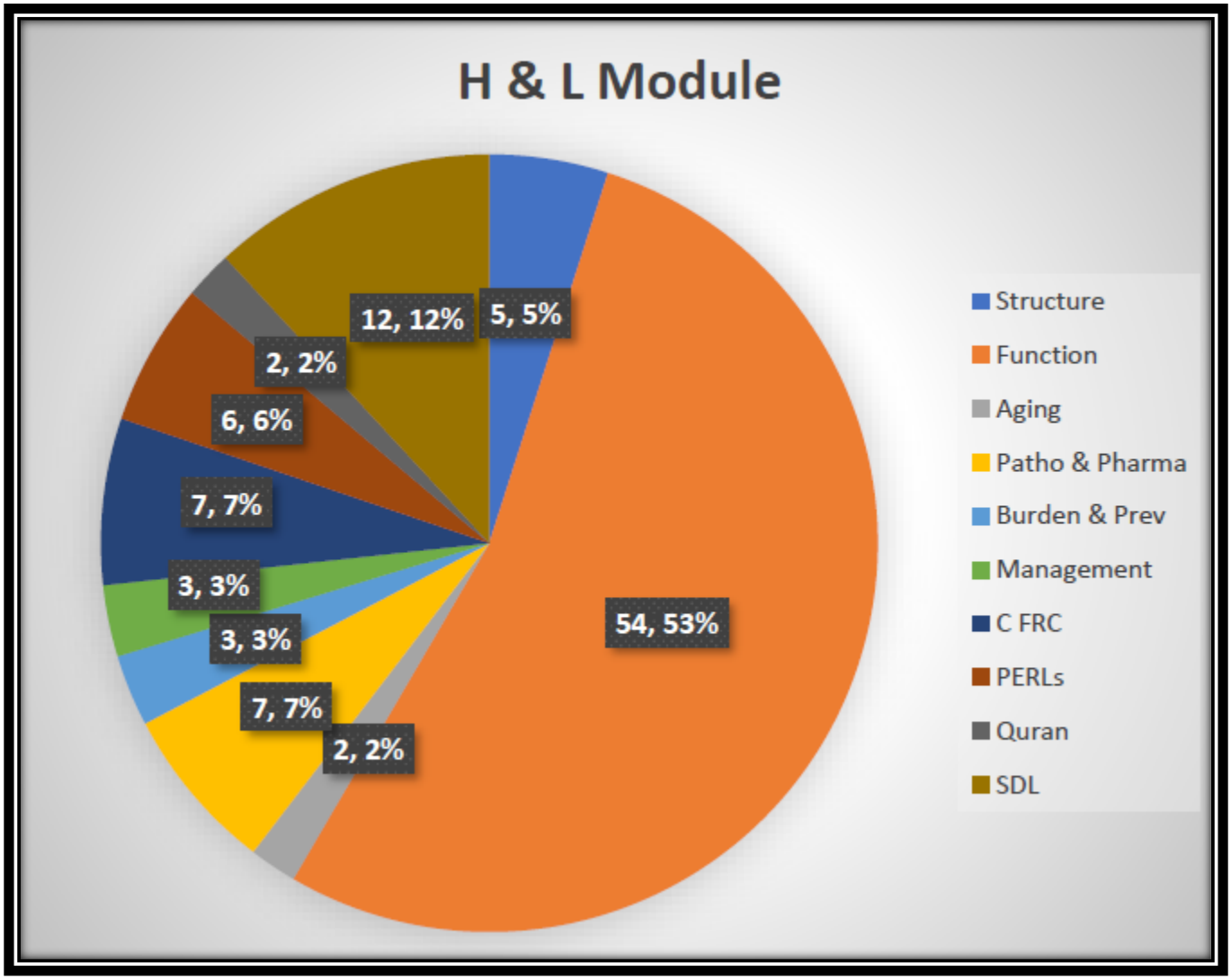
1.	PERLs - 1-06	Evidence based practitioner	Discuss Science and scientific evidence	Interactive lecture	DME	Dr.Faiza	Handouts shared as soft copy
2	PERLs - 1-05	Digital Citizen Digital Identity & footprint	Maintain personal privacy while sharing information. Identify cyberbullying, harassing, and sexting. Describe cybersecurity laws. Discuss digital rights and responsibilities	Interactive lecture	DME	Dr.Faiza	Handouts shared as soft copy

THE HOLY QURAN & ISLAMIYAT

CODE	SPECIFIC LEARNING OUTCOMES	DESCIPLINE	TOPIC	PORTFOLIO ENTRY
QI-05	• Recognize the importance of physical purity (Taharah) • Discuss the philosophy of prayer and its role in purification of soul • Recognize the importance of prayer in building personal character - sense of duty, patience, perseverance, punctuality, and self/social discipline • Spiritual, moral, and social impact of prayer in building of righteous community • Role in creating brotherhood, equality, and unity in ummah • Identify the conditions in which relaxation in prayer is allowed e.g. during operation, travelling etc.	Worship	Prayer	One SEQ

H&L module total hours = 103 hours

Normal Structure= 05	Clinical Skills Foundation = 07
Normal Function= 54	PERLs = 06
Aging= 02	Holy Quran and islamiyat = 02
Pathophysiology and Pharmacotherapeutics = 07	Civics= 02
Disease Burden and Prevention= 03	SDL= 12
Disease Management= 03	


H & L Module
5, 5%
54, 53%
2, 2%
7, 7%
3, 3%
3, 3%
7, 7%
6, 6%
2, 2%
12, 12%
Structure
Function
Aging
Patho & Pharma
Burden & Prev
Management
C FRC
PERLs
Quran
SDL

RESOURCE BOOKS

Anatomy

- Moore K.L. Clinically Oriented Anatomy. Baltimore, U.S.A. Williams and Wilkins:
- The Developing Human by K.L. Moore.
- Snell's Clinical Neuroanatomy.
- Laiq H.S. Medical Histology. Paramount Books.
- Laiq H.S. General Anatomy. Paramount Books.

Physiology

- Guyton AC and Hall JE (2001). Textbook of Medical Physiology. 10th edition. W. B. Sunders & Co.,Philadelphia.

Biochemistry

- Champe, P.C. & Harvey, E.A. Biochemistry (Lippincott's Illustrated Reviews). J.B Lippincott Co.
- Robert K. Murray, Daryl K. Granner, Peter A. Mayes, Victor W. Rodwell. Harper's Biochemistry. McGraw-Hill.
- ABC of Clinical Genetics by H.M. Kingston.

Pathology

- Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and Cotran, Pathologic basis of disease. WB Saunders.
- Richard Mitchall, Vinary Kumar, Abul K. Abbas and Nelson Fausto Robbins and

Cotran, Pocket Companion to Pathologic basis of diseases. Saunder Harcourt.

- Walter and Israel. General Pathology.

Churchill Livingstone.

Pharmacology

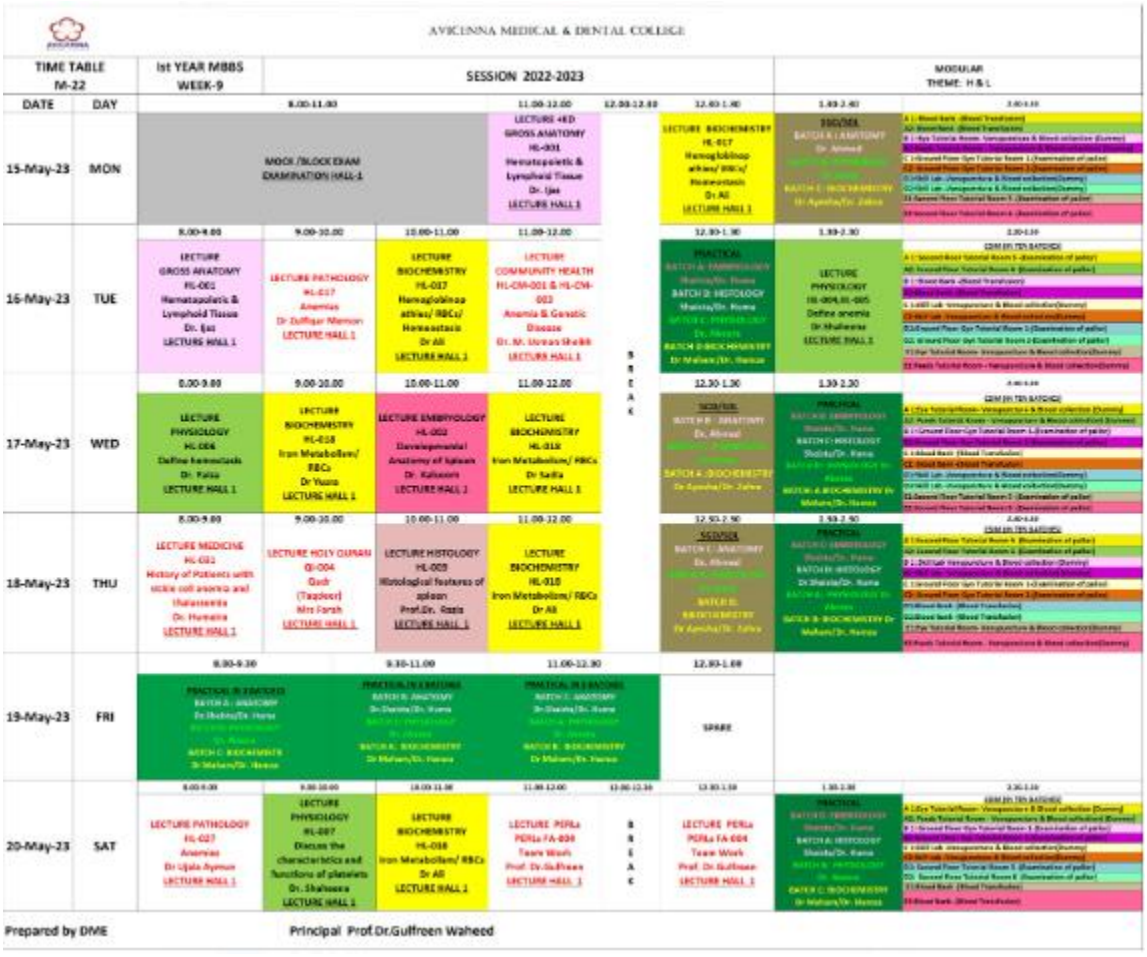
- Basic and Clinical Pharmacology by Katzung, McGraw-Hill.
- Pharmacology by Champe and Harvey, Lippincott Williams & Wilkins

Community medicine

- Parks Textbook of Preventive and Social Medicine. K. Park (Editor)
- Public Health and Community Medicine, Ilyas, Ansari (Editors)

THEMATIC TIMETABLES FOR EACH WEEK

WEEK-1:

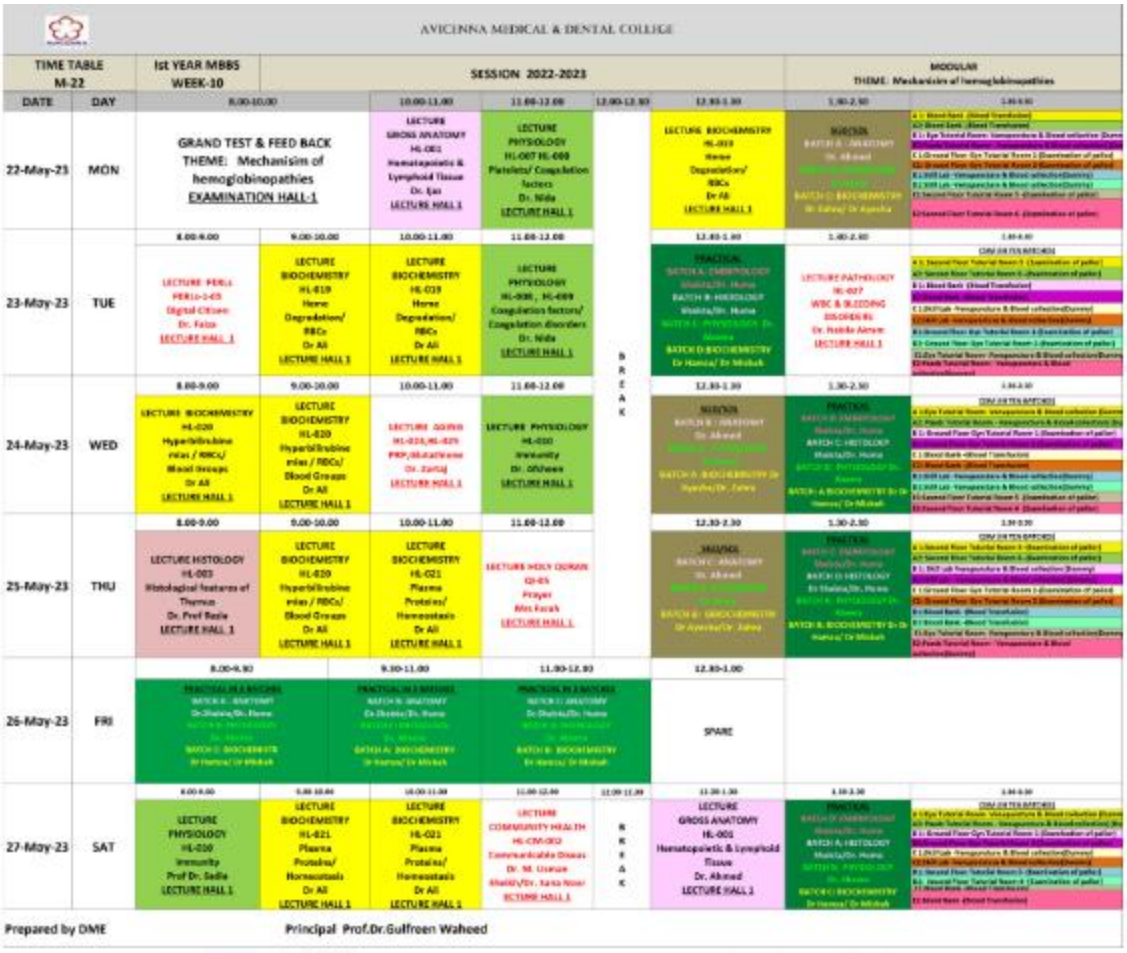


AVICENNA MEDICAL & DENTAL COLLEGE

TIME TABLE M-22		1st YEAR MBBS WEEK-9	SESSION 2022-2023					MODULAR THEME: H & L	
DATE	DAY	8.00-11.00		11.00-12.00	12.00-12.30	12.30-1.30		1.30-2.30	2.30-5.30
15-May-23	MON	MOCK /BLOCK EXAM EXAMINATION HALL-1		LECTURE +ED GROSS ANATOMY HL-001 Hematopoietic & Lymphoid Tissue Dr. Ijaz LECTURE HALL 1		LECTURE BIOCHEMISTRY HL-017 Hemoglobinopathies/ RBCs/ Homeostasis Dr Ali LECTURE HALL 1			
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00			12.30-1.30	1.30-2.30
16-May-23	TUE	LECTURE GROSS AVATOMY HL-001 Hematopoietic & Lymphoid Tissue Dr. Ijaz LECTURE HALL 1	LECTURE PATHOLOGY HL-017 Anemias Dr Zulfiqar Memon LECTURE HALL 1	LECTURE BIOCHEMISTRY HL-017 Hemoglobinopathies/ RBCs/ Homeostasis Dr Ali LECTURE HALL 1	LECTURE COMMUNITY HEALTH HL-CM-001 & HL-CM-003 Anemia & Genetic Disease Dr. M. Usman Sheikh LECTURE HALL 1	B R E A K		LECTURE PHYSIOLOGY HL-004,01-005 Define anemia Dr Shaheera LECTURE HALL 1	
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00			12.30-1.30	1.30-2.30
17-May-23	WED	LECTURE PHYSIOLOGY HL-004 Define hemostasis Dr. Faiza LECTURE HALL 1	LECTURE BIOCHEMISTRY HL-018 Iron Metabolism/ RBCs Dr Yusra LECTURE HALL 1	LECTURE EMBRYOLOGY HL-002 Developmental Anatomy of Spleen Dr. Kalsoom LECTURE HALL 1	LECTURE BIOCHEMISTRY HL-018 Iron Metabolism/ RBCs Dr Sadia LECTURE HALL 1				
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00			12.30-2.30	
18-May-23	THU	LECTURE MEDICINE HL-021 History of Patients with sickle cell anemia and thalassemia Dr. Humaira LECTURE HALL 1	LECTURE HOLY QURAN QI-004 Qadr (Taqdeer) Mrs Farah LECTURE HALL 1	LECTURE HISTOLOGY HL-003 Histological features of spleen Prof.Dr. Razia LECTURE HALL 1	LECTURE BIOCHEMISTRY HL-018 Iron Metabolism/ RBCs Dr Ali LECTURE HALL 1				
		8.00-9.30		9.30-11.00	11.00-12.30	12.30-1.30			
19-May-23	FRI					SPARE			
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00	12.00-12.30		1.30-2.30	2.30-5.30
20-May-23	SAT	LECTURE PATHOLOGY HL-027 Anemias Dr Ujala Ayman LECTURE HALL 1	LECTURE PHYSIOLOGY HL-007 Discuss the characteristics and functions of platelets Dr. Shaheera LECTURE HALL 1	LECTURE BIOCHEMISTRY HL-018 Iron Metabolism/ RBCs Dr Ali LECTURE HALL 1	LECTURE PEPLs PEPLs FA-004 Team Work Prof. Dr.Gulfreen LECTURE HALL 1	B R E A K	LECTURE PEPLs PEPLs FA-004 Team Work Prof. Dr.Gulfreen LECTURE HALL 1		

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WEEK-2:

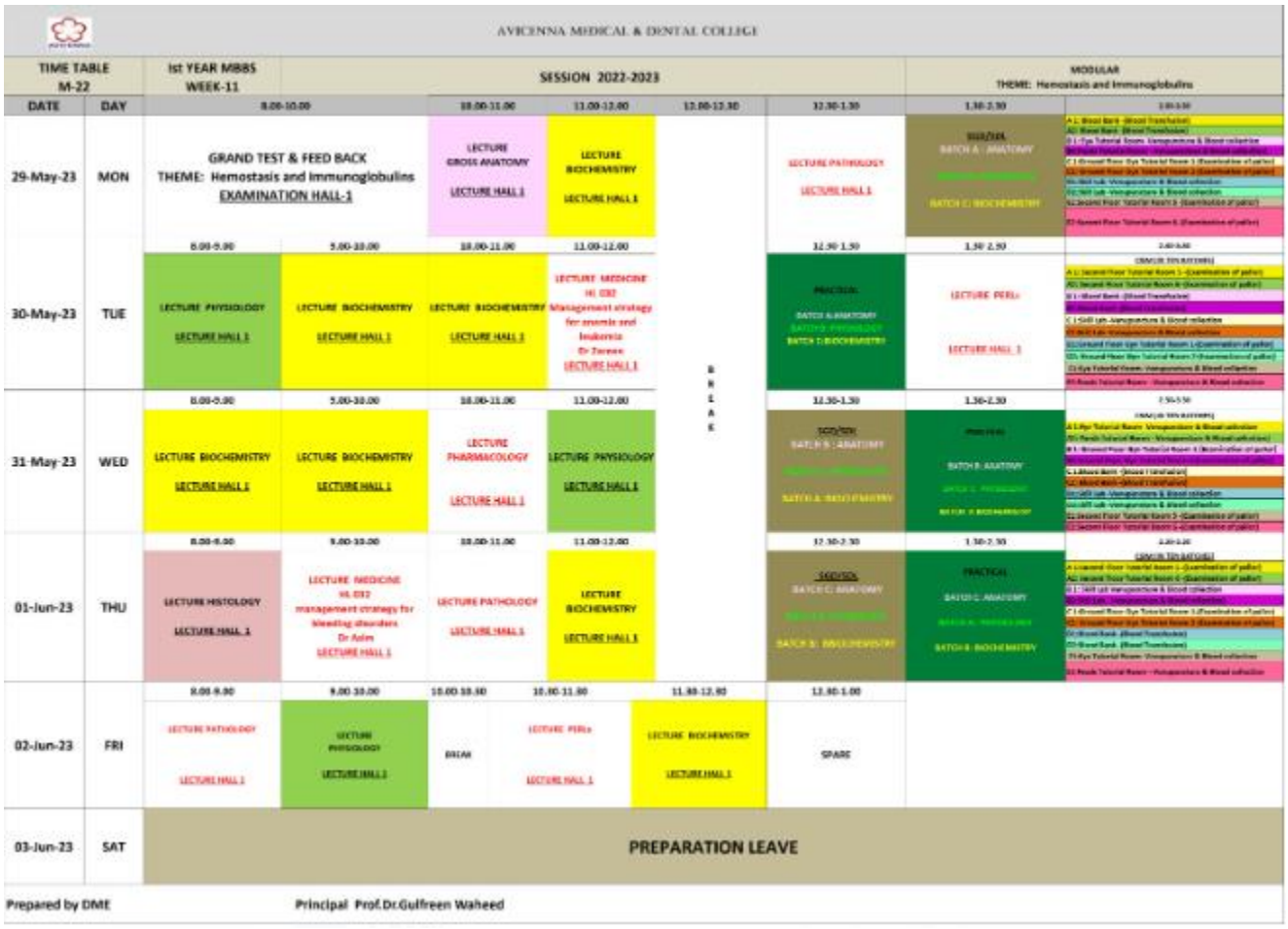


AVICENNA MEDICAL & DENTAL COLLEGE

TIME TABLE M-22		1st YEAR MBBS WEEK-10		SESSION 2022-2023				MODULAR THEME: Mechanism of hemoglobinopathies	
DATE	DAY	8.00-10.00		10.00-11.00	11.00-12.00	12.00-12.30	12.30-1.30	1.30-2.30	
22-May-23	MON	GRAND TEST & FEED BACK THEME: Mechanism of hemoglobinopathies EXAMINATION HALL-1		LECTURE GROSS ANATOMY HL-001 Hematopoiesis & Lymphoid Tissue Dr. Ijaz LECTURE HALL 1	LECTURE PHYSIOLOGY HL-007 HL-008 Platelets/ Coagulation factors Dr. Nida LECTURE HALL 1		LECTURE BIOCHEMISTRY HL-019 Heme Degradation/ RBCs Dr Ali LECTURE HALL 1	SUBJECTS BATCH A: ANATOMY Dr. Ahmed BATCH B: HISTOLOGY BATCH C: BIOCHEMISTRY Dr. Saheer/ Dr Ayesha	
23-May-23	TUE	8.00-9.00 LECTURE PERIO PERIO-1-05 Digital Citizen Dr. Faiza LECTURE HALL 1	9.00-10.00 LECTURE BIOCHEMISTRY HL-019 Heme Degradation/ RBCs Dr Ali LECTURE HALL 1	10.00-11.00 LECTURE BIOCHEMISTRY HL-019 Heme Degradation/ RBCs Dr Ali LECTURE HALL 1	11.00-12.00 LECTURE PHYSIOLOGY HL-008 , HL-009 Coagulation factors/ Coagulation disorders Dr. Nida LECTURE HALL 1	BREAK	12.30-1.30 PRACTICAL BATCH A: EMBRYOLOGY Anatomy/ Huma BATCH B: HISTOLOGY Shahida/Dr. Huma BATCH C: PHYSIOLOGY Dr. Aleena BATCH D: BIOCHEMISTRY Dr Hamna/ Dr Misbah	1.30-2.30 LECTURE PATHOLOGY HL-027 WBC & BLEEDING DISORDERS Dr. Habiba Aiman LECTURE HALL 1	CBM (SR TEA BATCHES)
24-May-23	WED	8.00-9.00 LECTURE BIOCHEMISTRY HL-020 Hyperbilirubine mias / RBCs/ Blood Groups Dr Ali LECTURE HALL 1	9.00-10.00 LECTURE BIOCHEMISTRY HL-020 Hyperbilirubine mias / RBCs/ Blood Groups Dr Ali LECTURE HALL 1	10.00-11.00 LECTURE QUIZ HL-019, HL-021 PBP/Biochemie Dr. Zartaj LECTURE HALL 1	11.00-12.00 LECTURE PHYSIOLOGY HL-010 Immunity Dr. Ghuwa LECTURE HALL 1		12.30-1.30 SUBJECTS BATCH A: ANATOMY Dr. Ahmed BATCH B: BIOCHEMISTRY Dr Ayesha/Dr. Zahra	1.30-2.30 PRACTICAL BATCH A: EMBRYOLOGY Anatomy/ Huma BATCH C: HISTOLOGY Shahida/Dr. Huma BATCH A: PHYSIOLOGY Dr. Aleena BATCH B: BIOCHEMISTRY Dr Hamna/ Dr Misbah	CBM (SR TEA BATCHES)
25-May-23	THU	8.00-9.00 LECTURE HISTOLOGY HL-003 Histological features of Thymus Dr. Prof Bada LECTURE HALL 1	9.00-10.00 LECTURE BIOCHEMISTRY HL-020 Hyperbilirubine mias / RBCs/ Blood Groups Dr Ali LECTURE HALL 1	10.00-11.00 LECTURE BIOCHEMISTRY HL-021 Plasma Proteins/ Homeostasis Dr Ali LECTURE HALL 1	11.00-12.00 LECTURE HOLY QURAN Q1-05 Prayer Mrs Farah LECTURE HALL 1		12.30-2.30 SUBJECTS BATCH C: ANATOMY Dr. Ahmed BATCH A: BIOCHEMISTRY Dr Ayesha/Dr. Zahra	1.30-2.30 PRACTICAL BATCH A: EMBRYOLOGY Anatomy/ Huma BATCH D: HISTOLOGY Dr Shahida/Dr. Huma BATCH A: PHYSIOLOGY Dr. Aleena BATCH B: BIOCHEMISTRY Dr Hamna/ Dr Misbah	CBM (SR TEA BATCHES)
26-May-23	FRI	8.00-9.30 PRACTICAL IN 3 BATCHES BATCH A: ANATOMY Dr.Shahida/Dr. Huma BATCH C: PHYSIOLOGY Dr. Aleena BATCH D: BIOCHEMISTRY Dr Hamna/ Dr Misbah		9.30-11.00 PRACTICAL IN 3 BATCHES BATCH A: ANATOMY Dr.Shahida/Dr. Huma BATCH C: PHYSIOLOGY Dr. Aleena BATCH A: BIOCHEMISTRY Dr Hamna/ Dr Misbah	11.30-12.30 PRACTICAL IN 3 BATCHES BATCH C: ANATOMY Dr.Shahida/Dr. Huma BATCH D: PHYSIOLOGY Dr. Aleena BATCH B: BIOCHEMISTRY Dr Hamna/ Dr Misbah		12.30-1.00 SPARE		
27-May-23	SAT	8.00-9.00 LECTURE PHYSIOLOGY HL-010 Immunity Prof Dr. Sadia LECTURE HALL 1	9.00-10.00 LECTURE BIOCHEMISTRY HL-021 Plasma Proteins/ Homeostasis Dr Ali LECTURE HALL 1	10.00-11.00 LECTURE BIOCHEMISTRY HL-021 Plasma Proteins/ Homeostasis Dr Ali LECTURE HALL 1	11.00-12.00 LECTURE COMMUNITY HEALTH HL-CM-002 Communicable Diseas Dr. M. Usman Khalid/Dr. Sana Noor RCTMM HALL 1	BREAK	12.30-1.30 LECTURE GROSS ANATOMY HL-001 Hematopoietic & Lymphoid Tissue Dr. Ahmed LECTURE HALL 1	1.30-2.30 PRACTICAL BATCH A: EMBRYOLOGY Anatomy/ Huma BATCH A: HISTOLOGY Shahida/Dr. Huma BATCH C: BIOCHEMISTRY Dr Hamna/ Dr Misbah	CBM (SR TEA BATCHES)

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WEEK-3



AVICENNA MEDICAL & DENTAL COLLEGE

TIME TABLE M-22		1st YEAR MBBS WEEK-11		SESSION 2022-2023				MODULAR THEME: Hemostasis and Immunoglobulins	
DATE	DAY	8.00-10.00		10.00-11.00	11.00-12.00	12.00-12.30	12.30-1.30	1.30-2.30	
29-May-23	MON	GRAND TEST & FEED BACK THEME: Hemostasis and Immunoglobulins EXAMINATION HALL-1		LECTURE GROSS ANATOMY LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1		LECTURE PATHOLOGY LECTURE HALL 1		
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00		12.30-1.30	1.30-2.30	
30-May-23	TUE	LECTURE PHYSIOLOGY LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1	LECTURE MEDICINE Management strategy for anemia and leukemia Dr Zareen LECTURE HALL 1	BREAK	PRACTICAL BATCH A: ANATOMY BATCH B: PHYSIOLOGY BATCH C: BIOCHEMISTRY	LECTURE PERI- LECTURE HALL 1	
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00		12.30-1.30	1.30-2.30	
31-May-23	WED	LECTURE BIOCHEMISTRY LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1	LECTURE PHARMACOLOGY LECTURE HALL 1	LECTURE PHYSIOLOGY LECTURE HALL 1		SGD/SDL BATCH B: ANATOMY BATCH C: PHYSIOLOGY BATCH A: BIOCHEMISTRY	PRACTICAL BATCH B: ANATOMY BATCH C: PHYSIOLOGY BATCH A: BIOCHEMISTRY	
		8.00-9.00	9.00-10.00	10.00-11.00	11.00-12.00		12.30-1.30	1.30-2.30	
01-Jun-23	THU	LECTURE HISTOLOGY LECTURE HALL 1	LECTURE MEDICINE management strategy for bleeding disorders Dr Azim LECTURE HALL 1	LECTURE PATHOLOGY LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1		SGD/SDL BATCH C: ANATOMY BATCH A: PHYSIOLOGY BATCH B: BIOCHEMISTRY	PRACTICAL BATCH C: ANATOMY BATCH A: PHYSIOLOGY BATCH B: BIOCHEMISTRY	
		8.00-9.00	9.00-10.00	10.00-10.30	10.30-11.30	11.30-12.30	12.30-1.00		
02-Jun-23	FRI	LECTURE PATHOLOGY LECTURE HALL 1	LECTURE PHYSIOLOGY LECTURE HALL 1	BREAK	LECTURE PERI- LECTURE HALL 1	LECTURE BIOCHEMISTRY LECTURE HALL 1	SPARE		
03-Jun-23	SAT	PREPARATION LEAVE							

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ASSESSMENT STRATEGIES:

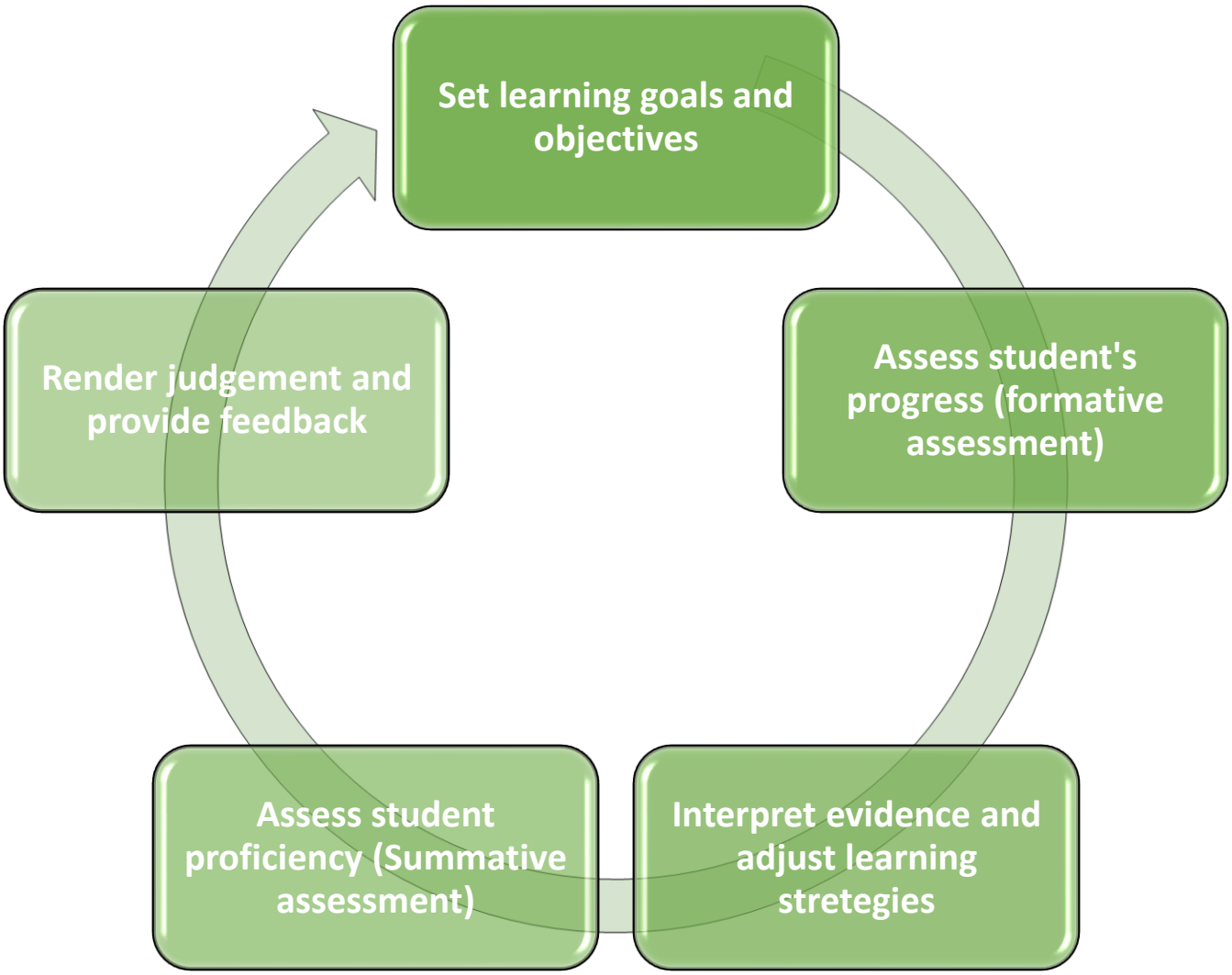
As assessment drives learning so assessment tools need to be in alignment with the domains of learning and instructional strategies. Both formative and summative assessments are encouraged. Formative assessments will be those written and practical tests whose weightage will not be included in the internal assessments. The summative assessment will comprise of internal assessment and professional examination. The weightage of internal assessment is 20% while that of professional examination is 80%.

Assessment tools for Theory

- Multiple Choice Questions (MCQ)
- Structured Essay Questions (SEQ)
- Reflective paper
- Assignment
- Presentation

Assessment tools for Practical, Clinical and Human (soft) skills

- Objective Structured Practical Examination
- Objective Structured Clinical Examination
- Structured Viva
- Short Case
- Long Case
- Logbook
- Portfolio
- Feedback (simple and/or 360 degree)


Set learning goals and objectives
Assess student's progress (formative assessment)
Interpret evidence and adjust learning stretegies
Assess student proficiency (Summative assessment)
Render judgement and provide feedback