Course Specification

Hematopoietic HPS-213

(2025- 2026)

1. Basic Information

Course Title (according to the bylaw)	**Hematopoietic Module**			
Course Code (according to the bylaw)	**HPS-231**			
Department/s participating in delivery of the course	**1.** Human Anatomy and Embryology **2.** Histology and cell biology **3.** Medical Physiology **4.** Medical Biochemistry and Molecular Biology **5.** Pathology **6.** Clinical Pharmacology **7.** Medical Microbiology and Immunology **8.** Medical Parasitology **9.** Pediatric Medicine **10.** Internal Medicine **11.** General Surgery			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (class activities)**	**Total**
	1.2	**0.9**	**0.9**	**3**
Course Type	اجباري			
Academic level at which the course is taught	الفرقة/المستوي الثاني			
Academic Program	**بكالوريوس الطب والجراحة (2+5) نظام الساعات المعتمدة**			
Faculty/Institute	**Faculty of Medicine**			
University/Academy	**Benha University**			
Name of Course Coordinator	**Dr. AlShaimaa AlTabbakh**			

Course Specification Approval Date	**9/16/2025**
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	- **Education and student affairs committee No.(296) 14/9/2025** - **faculty council NO (500)**

2. Course Overview (Brief summary of scientific content)

The aim of studying the hematopoietic system course is to provide undergraduate medical students with a comprehensive understanding of the hematopoietic and lymphatic systems, including their structure, function, development, and disorders. The course prepares students to recognize normal and abnormal hematopoiesis and lymphatic function, interpret common hematological investigations, and understand the pathophysiology of major blood and lymphatic diseases essential for clinical diagnosis and management of hematological conditions.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.1	Describe normal structure and function of human body and its systems at molecular, biochemical and cellular levels that maintain the body homeostasis.	4.1.1.	Describe the structure, development, and functions of the hematopoietic system, including bone marrow, stem cells, and major blood cell lineages.
		4.1.2.	Describe the structure, development, and functions of the hematopoietic system, including bone marrow, stem cells, and major blood cell lineages.
		4.1.3	Explain the process of erythropoiesis, including differentiation, maturation, and regulation.

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		4.1.4	Recognize the normal morphology and lifespan of blood cells
		4.1.5	Identify anatomy and histology of lymphatic system.
		4.1.6	Explain the components and functions of the lymphatic system, including lymph nodes, spleen, thymus, and peripheral lymphoid tissues.
4.3.	Explain the aetiology including (the role of genetics, immunologic, microbiologic, metabolic, neoplastic, traumatic and toxic causes) and the pathogenesis of the common diseases & illnesses.	4.3.1	Describe, production, functions, regulation and disorder of red blood cells.
		4.3.2	Describe white blood cell disorders.
		4.3.3	Identify anaemias, haemoglobinopathies and polycythaemias.
		4.3.4	Classify and discuss Non-neoplastic & Neoplastic LN enlargement.
4.5	Outline the pharmacokinetics, pharmacodynamics, indications, interactions, contraindications, and side effects of various therapeutic modalities (pharmacological and non-pharmacological) for acute, chronic and life-threatening illnesses.	4.5.1	Outline drugs used in treatment of anaemia and bleeding disorders
4.7	Integrate the facts of the basic sciences with clinical data.	4.7.1	Describe essential knowledge of bacteria, viruses and parasites causing infection of blood and lymphatic system and recognize their mode of infection, pathogenesis, clinical picture & diagnosis.
		4.7.2	Identify diagnostic stages of malaria & filariasis

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		4.7.3	Outline the preventive measures for infections affecting blood and lymphatic system.
		4.7.4	Describe iron deficiency anemia
4.8.	Interpret common investigative and diagnostic tools including: imaging, electrocardiograms, laboratory assays, pathologic studies and functional assessment tests.	4.8.1	Interpret & describe the principle of determination of blood groups.
		4.8.2	Interpret common investigative and diagnostic tools including laboratory assays, pathologic studies and functional assessment tests in diagnosis of white blood cell and red blood cell disorders.
		4.8.3.	Determine glucose 6- phosphate dehydrogenase.
		4.8.4.	Prepare and interpret blood film
		4.8.5.	Estimate haemoglobin and haematocrit.
		4.8.6.	Identify tests of haemostasis.
		4.8.7	Differentiate types of hyperbilirubinemia
		4.8.8	Describe direct and indirect methods used for diagnosis of typhoid fever.

4. Teaching and Learning Methods

1- **Modified active lectures.**
2- **Practical lessons**
3- **Small group teaching & tutorials**
4- **Case Based Learning**
5- **Directed Self Learning**
6- **Lectures on Benha E- learning platform & survey. موقع منصة التعليم الإلكتروني الخاص بجامعة بنها (thinqi)**
https://belc.bu.edu.eg/%D9%85%D9%86%D8%B5%D8%A9-%D8%AB%D9%8A%D9%86%D9%83%D9%89 /

Course Schedule (2 weeks- 3 credit hours)

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/tutorials/ CBL)	Training (Practical/Clinical/ .....)	Self-learning DSL	Other Skill lab
1	· Physiology of RBCs & Hemoglobin (Physiology)	32	1			
	· Physiology of Plasma & Plasma Proteins (Physiology)		2			
	·(Histology): Histology of Blood Cells		1	2		
	·(Biochemistry): Metabolism of RBCs & Heme synthesis		1			
	·(Physiology): Anemia and Polycythemia		1			
	·(Biochemistry): Heme Catabolism (RBC destruction)		1			
	·(Histology): Platelets & Bone Marrow		1			
	·(Physiology): Hemostasis I		1			
	· (Anatomy): Anatomy of the Lymphatic System		1			
	·(Physiology): Hemostasis II		1			
	·(Histology): Histology of Lymphatic System		1			

	· (Microiology): Brucella, Yersinia, Rickettsia & Q fever		2			
	·(Biochemistry): Units and Sampling			2		
	· (Physiology): ESR & Hematocrit estimation			2		
	·(Biochemistry): Colorimetry & Hemoglobin Assay			2		
	·(Physiology): Blood Groups			2		
	·(Anatomy): Anatomy of the Spleen			2		
	·(Physiology & Internal Medicine): Iron Deficiency Anemia		2			
	·(Pediatrics): G6PD Deficiency (Favism)		2			
	· (Physiology): Physiology of WBC				2	
	. Formative exam					
2	· Skill Lab (Surgery): Lymph Node Examination	26				2
	· (Microbiology): Bacteremia, Typhoid Fever		1			

	·(Pharmacology): Treatment of Anemia		1			
	·(Physiology): Tests of Hemostasis			2		
	· (Pathology): Non-Neoplastic Lymph Node Enlargement		1	2		
	· (Pathology): Neoplastic Lymph Node Enlargement		1	2		
	· (Histology): Thymus & lymph nodes & Spleen & Tonsils GC			2		
	· (Parasitology): Malaria		1			
	· (Parasitology): Lymphatic Filariasis		1			
	· (Microbiology): Parvovirus, EBV & Hemorrhagic Fevers		1			
	· (Pharmacology): Anticoagulants		1			
	· (Microbiology): Laboratory Diagnosis of Typhoid Fever, Plague & Undulant Fever			2		
	· (Parasitology): Lymphatic Filariasis & Malaria Parasites			2		
	· (Pathology):Splenic Mass & Cyst		2			
	· (Pathology & Surgery): Case of Lymphadenopathy		2			

5. Methods of students' assessment

No.	Assessment Methods	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Formative 1	End of 1st week	zero	-
2	Mid module assessment	2nd week	18	24%
3	Final Written Exam	End of first term	30	40%
4	Final practical Exam	End of 3rd week	22.5	30%
5	Portfolio/skill lab/DSL	Throughout the module	4.5	6%

6. Learning Resources and Supportive Facilities

Learning resources (books, scientific references, etc.)	**The main (essential) reference for the course**	• **Guyton & Hall, Textbook of Medical Physiology, 15th edition (2025, forthcoming).** • **Harper's Illustrated Biochemistry 31st Edition 2018** • **Lippincott Illustrated Review Biochemistry 7th Edition 2017** • **Sherwood L., Human Physiology: From Cells to Systems, 9th edition (2016).** • **Color Textbook of Histology; Gartner and Hiatt, 3rd edition (2007).** • **Katzung, Basic & Clinical Pharmacology, 15th edition (2020).** • **Lippincott illustrated reviews , pharmacology: integrated systems 8th edition 2022.** • **Levinson, W., Chin-Hong, P., Joyce, E. A., Nussbaum, J., & Schwartz, B. (2022). *Review of Medical Microbiology and Immunology: A Guide to Clinical Infectious Diseases* (17th ed.).** • **Basic Pathology: Kumar, Cortan and Robbins, 11th edition (2025).** • **Parasitic Diseases, 8th edition (latest).** • **Clinical Anatomy by Regions; 10th ed.; Snell R.S., Lippincott Williams & Wilkins, 2018.**

		• Gray's Anatomy for Students, 2nd ed. Churchill Livingstone/Elsevier, Philadelphia,2010 • Gray's anatomy : the anatomical basis of clinical practice (Forty-two edition.). Standring, S. (Ed.). Elsevier Limited.(2020).
	Other References	• Textbook of Human Parasitology, 5th edition (2018). • Paniker's Textbook of Medical Parasitology, 9th edition (2020). • Mims' Medical Microbiology, fifth edition. • Khonsary SA. Goodman and Gilman's: the pharmacological basis of therapeutics. Surg Neurol Int 2023; 14:91 • Langman's Medical Embryology; 15th ed.; Sadler T.W. and Langman J., Wolters Kluwer, 2023. • Hoffbrand, Moss and Pettit: Essential Haematology, 9th edition (2024).
	Electronic Sources	• Parasitology lectures (Benha Faculty of Medicine) [https://medicalparasitology.shutterfly.com/]. • www.ekb.eg . (Egyptian knowledge Bank) • http://www.pubmed.com . • http://sciencedirect.com .
	Learning Platforms	Thinqi https://belc.bu.edu.eg/%D9%85%D9%86%D8%B5%D8%A9-%D8%AB%D9%8A%D9%86%D9%83%D9%89 /
	Other	---
Supportive facilities & equipment for teaching and learning	Devices/Instruments	· Microscopes, Audiovisual equipments, computers
	Supplies	1- Lecture Room with enough number of comfortable seats & supplied with ; - Audiovisual equipments needed for power point presentation data show – smart boards – sound system- desktop 2- Whiteboard with markers are provided 3- Class rooms for small group teaching (instrument for physical examination like beds , blood pressure measuring devices , stethoscope) 4- Well-equipped laboratories 5- Digital slides 6- Gross wet specimens for demonstration
	Electronic Programs	-

	Skill Labs/ Simulators	· **Skill lab of Benha University (mannequins, audiovisual equipments)**
	Virtual Labs	**---**
	Other	· **Library: available reference textbooks and internet access** · **Egyptian knowledge bank**

Name and Signature

Course Coordinator

Dr. AlShaimaa AlTabbakh

Name and Signature

Program Coordinator

Prof.Dr/ Eman Araby