



Paramedical Program

Specialization	Medical Laboratories
Course Number	020807161
Course Title	Basics in Hematology
Credit Hours	(3)
Theoretical Hours	(2)
Practical Hours	(3)



**Brief Course Description:**

This course is designed to provide students with needed knowledge to perform a variety of lab test and to know the different component of the blood and their pathology .It will enable the student to know also the normal hemostasis and it's pathology and how to investigate and the coagulation abnormalities

Course Objectives:

Upon the completion of the course, the student should be able to:

- 1-Know the blood cells and their morphological abnormalities
- 2- Define anemia and polycythemia and their causes
- 3- Define leukemia's and their classifications
- 4-Know the role of platelets and their anomalies
- 5-Know the normal hemostasis
- 6-Know the coagulation abnormalities

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Detailed Course Description:

Unit Number	Unit Name	Unit Content	Time Needed
1	BLOOD	<p>A-Introduction a-Classification as a tissue b-Composition of the whole blood</p> <p>B-bone marrow: a-General structure b-Function c-Bone marrow examinations: aspiration and trephine biopsy</p> <p>C-Haematopoeisis: a-Site b-Hematopoietic stem cells</p>	
2	Red blood cells & ERYTHROPOEISIS:	<p>Erythropoietin -Substances needed for erythropoeisis -Hemoglobin synthesis, structure and functions -Erythrogenesis (Formation, Red blood cells life span, morphology and metabolism) -Red blood cells destruction</p> <p>ANEMIA -General aspects of anemia -Classification of anemia: Normochromic, Normocytic Macrocytic , Microcytic ,Hypochromic, Hyperchromic. -Clinical features and investigation of anemia</p> <p>POLYCYTHEMIA - Definition ,Causes</p>	



3	White blood cells	<p>LEUCOCYTOGENESIS -Normal granulocyte appearance -Granulocyte formation, kinetics, and functions -Agranulocytes formation, kinetic, and function -Discuss and perform lab tests used to detect WBC disorders</p> <p>LEUCOPENIA, LEUCOCYTOSIS -Definition ,Causes</p> <p>LEUKEMIA -Etiology -Classifications: acute versus chronic. -Mveloid versus lymphoid -Cells of origin of leukemia -Chromosomes changes</p>	
4	<p>PLATELETS</p> <p>&</p> <p>HEMOSTASIS</p>	<p>-Production -Circulation -Structures -Functions -Platelets disorders: Thrombocytopenia: Production failure Increase destruction</p> <p>-Hemostatic Control and Fibrinolysis</p> <p>-The Role of Laboratory in Diagnosis of Hemostatic Disease.</p>	
5	Practical Part	<p>1-Lab safety and quality control 2-Phlebotomy and anticoagulants 3-Haemoglobinometry and haematocrit 4-Hemoglobinemia and hemoglobinuria 5-ESR 6--Manual count of blood cells (RBC, WBC, and PLATLETES) 7- Differential count 8-Blood film</p>	

**Evaluation Strategies:**

Exams		Percentage	Date
Exams	First Exam	20%	--/--/----
	Second Exam	20%	--/--/----
	Practical Exam	10%	--/--/----
	Final Exam	35%Theory 15%Practical	--/--/----

Teaching Methodology:

- ❖ Lectures
- ❖ Slides and posters
- ❖ Practice inside labs

Text Books & References:**Reference**

- 1- Winrobe's clinical hematology, 13th ed, 2013, John p. Greer, Daniel A. Arber & Bertil glader.
- 2- William's hematology. Kenneth Kaushansky, Linda Burns, Michael A. Caligiuri. 2015.
- 3- clinical hematology : Theory & Procedures. 6th ed. 2017 . Mary Louise Tuegeon. Wolters Kluwer. LWW.
- 4- Rodak's Hematology: principles & applications Keohane, larry smith Jeanine Walenga. 5th ed. 2015 Elsevier.
- 5-Basics in Hematology. Ala'a Abu Samhadaneh, Fatima Al Nashash, Reem Abu Ihmaid. 1 st .2012.Dar , Al-Mujamaa Al-Arabi.Pub.



❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008