COURSE DESCRIPTIONS

Faculty	Pharmacy				
Department	Medical Laboratory Sciences			**NQF level**	5
Course Title	Introduction to Hematology	**Code**	**902265**	**Prerequisite**	**901358**
Credit Hours	3	**Theory**	2	**Practical**	1
Course Leader	**SokiynaAbabneh, M.Sc**	**email**	s.ababneh@jadara.edu.jo		
Lecturers	**SokiynaAbabneh, M.Sc**	**emails**	s.ababneh@jadara.edu.jo		
Lecture time		**Classroom**			
Semester	First 2021-2022	**Production**	2019	**Updated**	2020
Awards				**Attendance**	Fulltime

ShortDescription

Course will provide students with a background in blood and its components, and specifically the formed cellular elements including erythrocytes, leukocytes and thrombocytes. A detailed description of these elements will be provided with a major emphasis on their generation, structure, function and metabolism. A considerable portion of the course will be focus on intensive specialized knowledge covering the laboratory procedures for enumeration, examination, and identification of blood cellular components.

The primary purpose of the laboratory practice is to provide a better understanding of the most important basics, techniques, and test procedures, that are applied in routine hematology studies. In the lab, students are trained on blood withdrawing, complete blood count (CBC), blood film preparation and examination, and the interpretation of test results towards diagnosis of blood diseases and disorders.

Course Objectives

The major goal of this course is to provide students with basic knowledge in hematological science as a stepping stone for the diagnostic hematopathology courses where blood and bone marrow disorders will be discussed. Therefore, upon completion of this course, the student will be able…

- To understand the basic concepts and terminology in hematology.
- To understand the principles of blood cells generation (hematopoiesis) and the regulatory mechanisms involved in this process.
- To define cellular components of blood in regard to their structure, function, and metabolism.
- To be able to interpret the laboratory findings and to correlate them to the diagnostic aspects of blood disorders
- To experience and practice performing technical laboratory procedures for the enumeration and examination of blood cells.

Learning Outcomes
A. Knowledge - Theoretical Understanding
a1. Outline the structure, production, and function of blood cells. **a2.** Explain the procedures , reference ranges , and principles of medical tests that are used in hematology laboratory.
B. Knowledge - Practical Application
a3. Apply technical laboratory procedures for the enumeration and examination of blood cells.
C. Skills - Generic Problem Solving and Analytical Skills
b1. Analyze the scientific evidence underlying our current understanding of hematology for solving problems in medical analysis.
D. Skills - Communication, ICT, and Numeracy
b2. prove the ability to intellectual independence and commitment to lifelong learning.
E. Competence: Autonomy, Responsibility, and Context
c1. Adapt the knowledge gained from this course, in some of the specific methodologies used in medical tests in hematology.
Teaching and Learning Methods
• Lectures will be given according to the specified time and location as assigned on the academic schedule (see course information above) • Lectures will be administrated using power-point presentations and will be provided to the students through JU e-learning website. • Textbook is obligatory and required by the students **Teaching duration**: According to the academic calendar provided at JU website
Assessment Methods
• Midterm exam (30%) • Quiz (10%) • Lab reports (10%) • Final Exam (50%)

Course Contents					
Week	**Hours**	**CLOs**	**Topics**	**Teaching & Learning Methods**	**Assessment Methods**
1.	3	a1	• Introduction: Blood and it's components • Hematopoiesis	Power point presentation & textbook (chapter 7)	Midterm Exam
2.	3	a1	• Erythrocytes (I): Structure and Function • Erythrocytes (II): Hemoglobin	Power point presentation & textbook (chapter 9 & 10)	Midterm Exam

3.	3	a1	• Erythrocytes (III): Hemoglobin • Erythrocytes (IV): Iron Homeostasis	Power point presentation & textbook (chapter 11)	Midterm Exam
4.	3	a1,b1, c1,b2	• Erythrocytes (V): Erythropoiesis and Its regulation • Erythrocytes (VI): Destruction	Power point presentation & textbook (chapter 8)	Midterm Exam
5.	3	a3, b1,b2	• Anticoagulants. • Phlebotomy. • Erythrocytes (VII): Complete Blood Count (CBC) test analysis and red cell indices.	Power point presentation & textbook (chapter 15)	Final Exam & Quiz & lab report
6.	3	a2, a3,b1, b2	• Hemoglobin Determination. • Hematocrit Test. • Blood Elements Counting: Leukocytes, Erythrocytes, & Thrombocytes Counting.	Handout	Final Exam & Quiz & lab report
7.	3	a1, c1, b1,b2	• Erythrocytes (VIII): Blood Film Examination • Erythrocytes (X): CBC correlation with BFE • **Midterm Exam**	Power point presentation & textbook (chapter 16)	Midterm Exam
8.	3	a1,a2, a3	• Leukocytes (I): Classification and Structure.	Power point presentation & textbook (chapter 12)	Final Exam & Quiz & lab report
9.	3	a1, a2, a3,b2	• Leukocytes (II): Function • Leukocytes (III): Leukopoiesis • Erythrocytes Sedimentation Rate (ESR) Test. • Reticulocytes Count.	Power point presentation & textbook (chapter 12)	Final Exam & Quiz & lab report
10.	3	a2, ,a3, b1,b2, c1	• Blood Film Preparation, Staining and Examination.	Handout	Final Exam & Quiz & lab report
11.	3	a2 ,a3,c1	• Leukocytes (IV): CBC and Differential • Leukocytes (V): Morphological	Power point presentation & textbook (chapter 15 &16)	Final Exam & Quiz

			Examination.		
12.	3	a1,a2, ,b2,c1	• Leukocytes (VI): Immunohistochemistry • Hemostasis (I):Platelets Structure and Function.	Power point presentation & textbook (chapter 35)	Final Exam
13.	3	a1, b2	• Hemostasis (II): Megakaryopoiesis • Hemostasis (III): Coagulation System	Power point presentation & textbook (chapter 13)	Final Exam
14.	3	a1, b1,b2, c1	• Hemostasis (IV): Anti-Coagulation and Fibrinolysis	Power point presentation & textbook (chapter 37)	Final Exam
15.	3	a1,b1, b2,c1	• Homeostasis (V): Hemostatic Evaluation	Power point presentation & textbook (chapter 42)	Final Exam
16.	3	a1,a2, a3,b1, b2,c1	• Revision • **Final exam**		

Infrastructure	
Textbook	Hematology: Clinical principles and applications. Bernadette F. Rodak, George A. Fritsma and Kathryn Doig. Publisher: Saunders Elsevier 2016 5th edition ISBN:9780-323-23906-6
References	• https://evolve.elsevier.com • Lecture handouts • NCBI Database (https//:www.ncbi.nlm.nih.gov/): includes many updated textbooks that are available online FREE. • Internet: there are many websites that provide valuable updated data related to hematology including research paper, books, animation, etc. you can find more of these websites by searching in the internet using a suitable searching key. Many websites will be posted on E-learning during the semester.
Required reading	Textbook is obligatory and required by the students
Electronic materials	Provided to the students through JU e-learning website.
Other	In addition to the above, the students will be provided with handouts by the lecturer.

Course Assessment Plan								
Assessment Method		**Grade**	**CLOs**					
			a1	**a2**	**a3**	**b1**	**b2**	**c1**
First(Midterm)		30%	20			2	3	5
Second (if applicable)								
Final Exam		50%	16	10	3	8	5	8
Coursework								
Coursework assessment methods	Assignments							
	Case study							
	Discussion and interaction							
	Group work activities							
	Lab tests and assignments	10%		1	9			
	Presentations							
	Quizzes	10%		10				
Total		100%	36	21	12	10	8	13

Plagiarism
Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code). Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.