

## Course Syllabus of HematologyII

Faculty: Medicine and Health Sciences  
Department: Health science  
Program: Bachelor in Medical laboratory

### I. General information about the course instructor :

Name	Dr. Abdulrazzaq Othman Alagbare	Office Hours(3 Hours Weekly )					
Location & phone number	Sanaa 777182124	Sat	Sun	Mon	Tue	Wed	Thu
Email	Alagbariz@yahoo.com	1		1		1	

### II. General information about the course :

1.	Course Title:	HematologyII					
2.	Course Code and Number :	BML353					
3.	Credit Hours	Lecture	Seminar/Tutorial	Practical	Training	Total	
		2		1		3	
4.	Study Level and Semester:	3rd year /1st semester					
5.	Pre-requisites :	BML242					
6.	Co-requisites :	None					
7.	Program in which the course is offered	Bachelor in Medical laboratory					
8.	Teaching Language:	English					
9.	Study System :	Semester based					
10.	Prepared by :	Dr.Abdulrazzaq Othman Alagbare					
11.	Approval date :						
12.	Approved by:						

### III. Course Description :

This course provide the student in the medical laboratory with the basic and advance knowledge about the hemolytic disease s including thalassemia, sickle cells anaemia and spherocytosis. The topics will cover also the different types of acute and chronic leukaemia. To have theoretical and practical knowledge of the full range of hematological laboratory investigations performed for diagnosis and understanding the white blood cells disorders and the RBC disorders. The teaching will include lecture, collaborative learning, self-learning, dialogue, brain storming, discussion and assignment. The students will be evaluated through report, written exam and practical exam.

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مستعمل

APPROVED

عميد الكلية:  
د. عبد الله المخلافي

رئيس القسم:  
د. عبد الحبيب رمضان

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مستعمل  
د. محمد المريش  
د. مجاهد نصار

المراجع:  
د. محمد المريش  
د. مجاهد نصار

الموصف:  
د. عبدالرزاق الأغبري

#### IV. Course aims

At the end of this course the student will be able to

1. Recognize the hereditary and acquired hemolytic anemia and their investigation
2. Explain the white blood cells formation and function ,morphology (Normal) and abnormal
3. Recognize the white blood cells disorders benign and malignant
4. Carry out the most diagnostic blood tests for the WBC disorders benign and malignant
5. Write meaningful blood report with correct units and normal value

#### V. Course Intended Learning Outcomes (CILOs) :

After completion of this course student should be able to:

1. **State** types , mechanism ,causes and clinical pictures of different types of hereditary and acquired hemolytic anemia,
2. **Define** and calculate the normal absolute and relative count of each type of white blood cells.
3. **Describe** the mechanism, causes and clinical picture and investigations of acute and chronic leukemia and other blood cells malignancies.
4. **Analyze** the results of diagnostic procedures, for each type of hemolytic anemia and leukaemia and other WBC disorders
5. **Design** an appropriate diagnostic plan for evaluation of WBC disorders
6. **Apply** the routine lab tests for WBCs and RBCs disorders by classical methods of investigation as CBC, blood film and Cytochemical stains,
7. **Demonstrate** methods such as bone marrow study, immunophenotyping, flowcytometry, molecular and genetic analysis, etc. and correlate it's to reach the correct diagnosis
8. **Operate** in the automated area under appropriate scientific supervision .
9. Cooperate with supervisors and colleagues in biology lab and show the appropriate responsibility, self-confidence and behaviors

#### VI. Course Contents

First: Theoretical Aspect:

No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours
1	Haemoglobinopathies/variant types	Types, mechanism, diagnosis and investigations	1 <sup>st</sup>	2
2	Haemoglobinopathies/ sickle cell anemia	Types, mechanism, diagnosis and investigations	2 <sup>nd</sup>	2
3	Thalassemia	Types, mechanism, diagnosis and investigations	3 <sup>rd</sup>	2
4	Congenital haemolytic anaemia (Hereditary spherocytosis)	Types, mechanism, diagnosis and investigations		2

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5	Acquired hemolytic anemia	Warm and cold AIHA mechanism, diagnosis and investigations	5 <sup>th</sup>	2
6	Mid term		6 <sup>th</sup>	2
7	WBC function and Abnormalities in leukocyte number	Neutrophilia, eosinophilia, lymphocytosis, lymphopenia, Diseases, investigation	7 <sup>th</sup>	2
8	Qualitative defects of granular white cells	Acquired disorders in Neutrophils Pelger-Huet anomaly. May-Hegglin anomaly Alder's anomaly, Chediak-Higashi syndrome Myeloperoxidase deficiency (MPO)	8 <sup>th</sup>	2
9	Introduction of Hematological. Malignancy	Definition, classification, risk factors plan investigation etc.	9 <sup>th</sup>	2
10	Acute leukemia –AML Acute Lymphoblastic Leukemia (ALL)	Types, mechanism, diagnosis and investigations	10 <sup>th</sup> , 11 <sup>th</sup>	4
11	The chronic myeloproliferative disorders (CMPDs)-CML	Types, mechanism, diagnosis and investigations	12 <sup>th</sup>	2
12	Polycythemia and Essential Thrombocythemia Myelofibrosis Myeloid Metaplasia (MMM)	Types, mechanism, diagnosis and investigations	13 <sup>th</sup>	2
13	The chronic lymphoproliferative disorders (CLPD)- CLL,HCL Adult T-cell leukemia/lymphoma (ATLL)	Types, mechanism, diagnosis and investigations	14 <sup>th</sup>	2
14	Final exam		15 <sup>th</sup>	2
<b>Total number of weeks and hours</b>			15	30

Second: Practical/Tutorial/Clinical Aspects			
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours
1	Red Blood Cells Morphology, Normal red cell Morphological abnormalities in each hemolytic anemia	1 <sup>st</sup>	2
2	Sickling tests, Reticulocytes count, Osmotic fragility test	2 <sup>nd</sup> , 3 <sup>rd</sup>	4
3	Blood film preparation for WBC study, How to study the blood smear? Normal WBC count value in adult and children Relative count Absolute count, how calculated	4 <sup>th</sup> , 5 <sup>th</sup>	4

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	NRBC interference on the WBC counting , How calculated and corrected the new result		
4	Leukocytosis , -Neutrophilia How to study? Toxic granulation, vacuolization, ..How reported on the blood film? Immature granulocytes (Band form, myelocytes , metamyelocytes) how reported? Eosinophilia, how to study,? How reported? Basophilia, How study and reported? Monocytosis, How study and reported?	6 <sup>th</sup>	2
6	Leukocytosis , Lymphocytosis Normal lymphocytes appearance Atypical or reactive lymphocytes appearance How study and how reported? Leukopenia Neutropenia, types, how study ? how reported? Lymphopenia , How study? How reported?	7 <sup>th</sup>	2
7	leukemia Workup acute leukemia Complete blood count.(CBC or FBC) WBC count Blood film inspection, what we look for? How? 5. Changes of white blood cells, 6. % of blast cells 7. Type of blast cells (myeloblast or lymphoblast etc) 8. morphologic features	8 <sup>th</sup>	2
8	Cytochemical stains, importance in identification and classification of leukemia in acute and chronic 7. Myeloperoxidase (MPO) 8. Sudan Black B (SBB) 9. Specific esterase 10. Nonspecific esterase (NSE) 11. Terminal deoxynucleotidyl transferase (TdT) 12. Periodic acid Schiff stain PAS	9 <sup>th</sup>	2
9	AML Blood cells study (WBC, RBC, and platelets ) WBC count and blood film study ,How reported Cytochemistry study	10 <sup>th</sup>	2
10	ALL Blood cells study (WBC, RBC, and platelets ) WBC count and blood film study, types of ALL How reported Cytochemistry study	11 <sup>th</sup> ,	2
11	CML Blood cells study (WBC, RBC, and platelets ) WBC count and blood film study ,How reported Cytochemistry study BCR-ABL 1 importance as test	12 <sup>th</sup>	2
12	Final Practical exam	13 <sup>th</sup>	
Total number of weeks and hours			

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