

*American University of Beirut
Faculty of Health Sciences
Medical Laboratory Sciences Program*

LABM 230
(Clinical Hematology)
Spring AY/2023-24

Name	Rolla Al-Khatib	Course Credits	4 credits
Office Hours:	By appointment	Meeting Location	Room 203
Office Location:	Van Dyck, Rm 321	Meeting Time	MF: 3:30-4:45
Extension	4696	Prerequisites	MLSP 201 & 202
E-mail	ra03@aub.edu.lb		
Training supervisor (AUBMC)	Zeinab Shahin		

Course Description:
This course is intended to provide students with basic information on how to recognize and diagnose hematological conditions that are frequently observed in the laboratory and how to correlate various laboratory test findings with their associated clinical conditions. It will expose students to review articles and case studies in hematology with specific information on various hematological disorders. The theoretical part of the course runs simultaneously with the clinical training taking place at the AUB-Medical Center, Hematology section to allow coordination of theoretical information with the practicum.

Learning Outcomes:
Upon completion of this course, students should be able to:
<ol style="list-style-type: none"> 1. Explain the basic laboratory tools needed for the diagnosis of anemia. 2. Use a morphological classification to differentiate between the different types of anemia. 3. Differentiate between the different types of anemias of abnormal iron metabolism. 4. Identify characteristics, clinical and laboratory findings in various hemoglobinopathies. 5. Compare and contrast between extravascular and intravascular hemolytic anemias. 6. Diagnose different types of anemias based on various diagnostic findings. 7. Differentiate between the different types of leukemias 8. Describe various hematologic malignancies and discuss the differential diagnosis and diagnostic work up.

COURSE SYLLABUS

	Topic	Activities	Instructor
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Group I

WEEK 1			
F JAN 19	* Introduction	Syllabus	Khatib

WEEK 2

M JAN 22	* Classification of Anemia * Diagnostic tools used in the classification of anemias	* Review article * Review article	Khatib
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F JAN 26	Anemias of abnormal iron metabolism * Fe Deficiency Anemia * ACD * Sideroblastic Anemia	* Review article * Case Studies * Case Studies * Case Studies	Khatib
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	*Work Flow in Hematology		Shahin
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WEEK 3

M JAN 29	Quantitative Hemoglobinopathies * Beta Thalassemia * Alpha Thalassemia * Delta Beta Thalassemia * HPFH	* Review article *Case Studies *Case Studies *Case Studies *Case Studies	Khatib
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F FEB 2	Structural Hemoglobinopathies * Hb S Disease * Hb C Disease * Hb E Disease	* Review article *Case Studies *Case Studies *Case Studies	Khatib
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	*Normal Differential		Shahin
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WEEK 4

M FEB 5	Double Heterozygous Conditions * Hb SC Disease * HbS –Thalassemia * HbE –Thalassemia	* Review article *Case Studies *Case Studies *Case Studies	Khatib
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F FEB 9	Vacation		
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	*Abnormal Differential		Shahin
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WEEK 5

M FEB 12	* HPLC Interpretation Anemia of decreased blood cell production * Megaloblastic Anemia Anemias of increased blood cell destruction/Hemolytic Anemias * Extravascular Hemolytic Anemia * Intravascular Hemolytic Anemia	* Review article *Case Studies *Case Studies *Case Studies	Khatib
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W FEB 14 Make up session instead of Sat Feb 3	Case studies evaluation		
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F FEB 16	Acute Leukemias * ALL	* Review *Case Studies	Khatib
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	*Reticulocyte count *Platelet Count		Shahin
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WEEK 6

M FEB 19	*ANLL	*Case Studies	Khatib
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F FEB 23	Chronic Leukemias * CML * CML/Leukemoid Reaction * CLL	*Case Studies *Case Studies *Case Studies	Khatib
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	* Blood Film Inspection		Shahin
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WEEK 7

M FEB 26	* HCL * Multiple Myeloma	*Case Studies *Case Studies	Khatib
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	*CSF and Body Fluid examination *Automation and Quality control		Shahin
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Group II

WEEK 1			
F MAR 8	* Introduction	Syllabus	Khatib
WEEK 2			
M MAR 11	* Classification of Anemia * Diagnostic tools used in the classification of anemias	* Review article * Review article	Khatib
F MAR 15	Anemias of abnormal iron metabolism * Fe Deficiency Anemia * ACD * Sideroblastic Anemia	* Review article * Case Studies * Case Studies * Case Studies	Khatib
*Work Flow in Hematology			Shahin
WEEK 3			
M MAR 18	Quantitative Hemoglobinopathies * Beta Thalassemia * Alpha Thalassemia * Delta Beta Thalassemia * HPFH	* Review article *Case Studies *Case Studies *Case Studies *Case Studies	Khatib
F MAR 22	Structural Hemoglobinopathies * Hb S Disease * Hb C Disease * Hb E Disease	* Review article *Case Studies *Case Studies *Case Studies	Khatib
*Normal Differential			Shahin
WEEK 4			
M MAR 25	Vacation		
F MAR 29	Vacation		

WEEK 5

M APR 1	Vacation		
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F APR 5	Double Heterozygous Conditions * Hb SC Disease * HbS –Thalassemia * HbE –Thalassemia	* Review article *Case Studies *Case Studies *Case Studies	Khatib
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	*Abnormal Differential		Shahin
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WEEK 6

M APR 8	* HPLC Interpretation Anemia of decreased blood cell production * Megaloblastic Anemia Anemias of increased blood cell destruction/Hemolytic Anemias * Extravascular Hemolytic Anemia * Intravascular Hemolytic Anemia	* Review article *Case Studies *Case Studies *Case Studies	Khatib
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F APR 12	Vacation		
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	*Reticulocyte count *Platelet Count		Shahin
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WEEK 7

M APR 15	Acute Leukemias * ALL	* Review *Case Studies	Khatib
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W APR 17 Make up session instead of Sat Feb 3	Case studies evaluation		
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F APR 19	*ANLL	*Case Studies	Khatib
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	* Blood Film Inspection		Shahin
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WEEK 8

M APR 22	Chronic Leukemias * CML * CML/Leukemoid Reaction * CLL	* Review *Case Studies *Case Studies *Case Studies	Khatib
F APR 26	* HCL * Multiple Myeloma	*Case Studies *Case Studies	Khatib
	*CSF and Body Fluid examination *Automation and Quality control		Shahin

EVALUATION

I-Theoretical Evaluation:

- Written Exam (Khatib) 35% (meets objectives 1,2,3,4,5,6,7,8)
- Case studies 10% (meets objectives 2,3,4,5,6,7,8)
- Attendance/Participation 5%
- Written Exam (Shahin) 10%

II-Practical Evaluation

- Practical Exam (Khatib) 10%
- Practical Exam (Shahin) 10%
- Practical Training Evaluation (Shahin) 20%

REFERENCES

- * **Moodle Course**
- * **Clinical Laboratory Hematology**
by [Shirlyn B. McKenzie Ph.D. CLS \(NCA\)](#) (Author), [Lynne Williams](#) (Author)
- * **Hematology Links**
www.hematology.org
www.mdanderson.org
www.oncologychannel.com
www.hematologyatlas.com

COURSE POLICY

1. **Attendance:** Attendance will be taken on a daily basis during the rotation in the hospital laboratory and during each session. You are expected to attend all classes and participate in class activities. If you miss a class, it is your responsibility to make up for the material missed, and inquire about any announcements made. If you miss more than one fifth of rotation hours/class sessions, you are subject to withdrawing from the course with a-w-grade before the last day for course withdrawal. *Please refer to the AUB catalogue.*
2. **Exams:** Examinations must be taken as scheduled. Make up exams will not be given unless a valid excuse is given. Only authorized medical reports will be accepted. (AUBMC/ Infirmary).
3. **Withdrawal date:** Please observe withdrawal dates set by the Registrar's Office.
4. **E-mail communication:** I will be e-mailing you on regular basis throughout the semester. You are required to check your e-mails regularly.
5. **Moodle:** The course material and assignments are posted on Moodle. Students are held accountable for checking the Moodle course on regular basis.
6. **Academic integrity:** Education is demanding and you need to properly manage your time. Do not hesitate to use the resources around you but do not cut corners. Cheating and plagiarism will not be tolerated. Review the Student Code of Conduct and familiarize yourself with definitions and penalties. Cheating might earn you a failing mark on the assignment, at the very least. You might fail the course in which you cheated, be warned, suspended or expelled from University and a permanent mention of the disciplinary action might be made in your student records. If you're in doubt about what constitutes plagiarism, ask your instructor because it is *your* responsibility to know. Remember that the American University of Beirut has a strict anti-cheating and anti-plagiarism policy. Do not become a lesson to others. For further information, kindly visit AUB's Policies and Procedures or <http://pnp.aub.edu.lb/general/conductcode>.
7. **Students with Disabilities:** If you have a disability, for which you may request accommodation in AUB classes, consult the website for more information and make arrangements with the Coordinator (http://www.aub.edu.lb/sao/Pages/Students_20with_20Special_20Needs.aspx). Also, please see the instructor of this course privately in regard to possible support services that can be provided to you.
8. **Non-Discrimination – Title IX – AUB:**
AUB is committed to facilitating a campus free of all forms of discrimination including sex/gender-based harassment prohibited by Title IX. The University's non-discrimination policy applies to, and protects, all students, faculty, and staff. If

you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University's Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at www.aub.edu.lb/titleix. **To report an incident**, contact the University's Title IX Coordinator Ms. Mitra Tauk at 01-350000 ext. 2514, or titleix@aub.edu.lb. An anonymous report may be submitted online via Ethics Point at www.aub.ethicspoint.com.