

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

MLSP 202

(Clinical Hematology II)

Spring Semester 2023-2024

Name	Rolla Al-Khatib	Course Credits	3 credits
Office Hours	By appointment	Meeting Location	Vandyke Auditorium
Office Location	Van Dyck, Rm 321	Meeting Time	T 02:00 p.m. – 03:15 p.m. R : 02:30 p.m. – 03:45 p.m. Lab section 1: 12:00-1:30 VD 403 Lab section 2: 1:30-3:00 VD 403
Extension	4696		
E-mail	ra03@aub.edu.lb	Prerequisite	MLSP 201

COURSE DESCRIPTION

This course is intended to introduce students to the various white blood cell anomalies, including numerical and morphologic abnormalities of blood cells. In addition, students are introduced to the major types of leukemia and Lymphoma as well as to the various tools used in the diagnosis of these malignancies, including morphologic criteria, cytochemical stains, immunophenotyping and the chromosomal abnormalities associated with these neoplasms.

STUDENTS LEARNING OUTCOMES

By the end of the course, students will be able to:

- 1- Describe the various quantitative and qualitative anomalies of white blood cells.
- 2- Describe the different types of leukemia including acute and chronic leukemias.
- 3- Classify the different types of leukemia.
- 4- Diagnose the different types of leukemia based on morphologic criteria, chromosomal abnormalities, immunophenotypic features with emphasis on flow cytometry, and cytochemical stains.
- 5- Describe the principle of Flow Cytometry and relate the immunophenotypic features to the classification of leukemias.
- 6- Describe the different types of Lymphomas.

REFERENCES

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

STUDENT ASSESSMENT

Grades for this course will be based on the following criteria:

Quiz I	30 %	(meets objective 1)
Quiz II	35 %	(meets objectives 2,3,4)
Final Exam	35 %	(meets objective 4,5,6)

N.B.: The passing grade for the course is 60

COURSE SYLLABUS

Week	Topic	Lecturer	Reading
WEEK 1			
R JAN 18	* Introduction	Khatib	Moodle (lecture)
	* WBC Anomalies (General Aspects) * Numerical anomalies of WBCs	Khatib	Moodle (lecture)
WEEK 2			
T JAN 23	* Neutrophilia * Physiologic elevations of Neutrophils * Pathologic elevations of Neutrophils * Neutropenia	Khatib	Moodle (lecture)
R JAN 25	* Eosinophilia * Basophilia * Lymphocytosis * Monocytosis	Khatib	Moodle (Lecture)
F JAN 26 (Lab)	* Blood Differential Neutrophilia/Eosinophilia/Basophilia	Group I & II	
WEEK 3			
T JAN 30	Morphological abnormalities of WBCs * Acquired anomalies * Congenital Conditions <ul style="list-style-type: none"> • Pelger Huet Anomaly • May Hegglin anomaly • Alder Reilly Anomaly • Chediak –Higashi Anomaly 	Khatib	Moodle (Lecture)

R FEB 1	* Case Studies	Group discussions	Moodle (Lecture)
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F FEB 2 (Lab)	* Blood Differential Neutrophilia/Eosinophilia/Basophilia	Group III & IV	
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WEEK 4

T FEB 6	* Case Studies	Group discussions	Moodle (Lecture)
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R FEB 8	* Case Studies	Presentations	Moodle (Lecture)
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F FEB 9	* Vacation		
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WEEK 5

T FEB 13	* Coagulation II	Dr. Mahfouz	Moodle (lecture)
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R FEB 15	* Introduction to Cancer * Types of Cancer * Diagnosis of Cancer * Treatment of Cancer	Khatib	Moodle (Lecture)
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F FEB 16 Lab Group I/ II	* Blood Differential Monocytosis /Lymphocytosis	Khatib	
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WEEK 6

T FEB 20	* Testimonials		Moodle (Lecture)
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R FEB 22	* Introduction to leukemia * Diagnosis and treatment of Leukemia * Predisposing factors to Leukemia	Khatib	Moodle (Lecture)
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F FEB 23 (Lab)	* Blood Differential Monocytosis /Lymphocytosis	Group III & IV	
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WEEK 7

T FEB 27	* Acute Leukemia * ALL (Morphologic classification)	Khatib	Moodle (Lecture)
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R FEB 29	* ALL (Immunologic classification) * Chromosomal abnormalities * Prognosis	Khatib	Moodle (Lecture)
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F MAR 1 Lab Group I/ II	* Blood Differential ALL	Group I & II	
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WEEK 8

T MAR 5	* Quiz I		
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R MAR 7	* ANLL (FAB Classification) M0 M1 M2	Khatib	Moodle (Lecture)
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F MAR 8 (Lab)	* Blood Differential ALL	Group III & IV	
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WEEK 9

T MAR 12	* M3 * M4 * M5	Khatib	Moodle (lecture)
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R MAR 14	* M6 * M7 * MDS	Khatib	Moodle (lecture)
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F MAR 15 Lab Group I/ II	* Blood Differential ANLL	Group I & II	
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WEEK 10

T MAR 19	* PAS * Myeloperoxidase * Sudan Black B * Non Specific Esterases * Specific Esterases	Khatib	Moodle (lecture)
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R MAR 21	* Introduction to MPD(s) * Introduction to Chronic Myeloid Leukemia (CML) * CML (Chronic phase) * Clinical course * Lab findings	Khatib	Moodle (lecture)
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F MAR 22 (Lab)	* Blood Differential ANLL	Group III & IV	
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WEEK 11

T MAR 26	* CML (Blastic transformation) * Clinical course * Lab findings * LAP * Juvenile CML	Khatib	Moodle (lecture)
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R MAR 28	* Polycythemia Vera * MMM * Idiopathic Thrombocytopenia * CNL	Khatib	Moodle (lecture)
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F MAR 29	* Vacation		
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WEEK 12

T APR 2	* Quiz II		
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R APR 4	* CLL * HCL	Khatib	Moodle (lecture)
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F APR 5 Lab Group I/ II	* Blood Differential CML	Group I & II	
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WEEK 13

T APR 9	* Monoclonal Gammopathies * Multiple Myeloma	Khatib	Moodle (lecture)
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R APR 11	* Vacation		
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F APR 12	* Vacation		
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WEEK 14

T APR 16	* Flow Cytometry I	Dr. Mahfouz	Moodle (lecture)
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R APR 18	* Flow Cytometry II	Dr. Mahfouz	Moodle (lecture)
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F APR 19 (Lab)	* Blood Differential CML	Group III & IV	
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WEEK 15

T APR 23	* Lymphoid organs * Introduction to Lymphomas	Dr. Tawil	Moodle (lecture)
R APR 25	* Classification of Lymphomas	Dr. Tawil	Moodle (lecture)
F APR 26 (Make up Lab session instead of Sat Mar16)	* Blood Differential Unknown	Group I, II, III & IV	

COURSE POLICY

1. **Attendance:** Attendance will be taken 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 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.