

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

MLSP 202

(Clinical Hematology II)
Spring Semester 2019-2020

Name	Rolla Al-Khatib	Course Credits:	3 credits
Office Hours:	M.W.F. 11:00 a.m. – 12:00 a.m.	Meeting Location	Nabil Boustani Auditorium
	or by appointment		
Office Location:	Van Dyck, Rm 322	Meeting Time:	TR : 02:00 p.m. – 03:15 p.m.
Extension	4696		
E-mail	ra03@aub.edu.lb		

COURSE DESCRIPTION

This course is intended to introduce students to the various white blood cell anomalies, including numerical and morphologic abnormalities of cells. It also introduces them to clotting cascade and the coagulation disorders. 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.

GENERAL INSTRUCTIONAL OBJECTIVES

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

- List the common nonmalignant causes for quantitative increases and decreases in white blood cells.
- Compare and contrast the inherited morphologic abnormalities of white blood cells.
- Differentiate between a leukemoid reaction and leukemia, explaining procedures useful in differential diagnosis.
- Understand the factors related to the occurrence of leukemia.
- Clinically distinguish acute and chronic leukemias.
- Compare and contrast methods used in the classification of leukemia by morphology, presenting signs and symptoms, laboratory analysis and prognosis.
- Explain the known chromosomal abnormalities found in leukemias.
- Describe the expected maturation sequence of different cell lines, and relate the immunophenotypic features to the classification of leukemias.
- Discuss the purpose for performing cytochemical stains.
- Discuss the principles and cell staining patterns for the following tests, ie: myeloperoxidase, Sudan Black B, Esterases, Periodic Acid-Schiff, Leukocyte Alkaline Phosphate.
- Discuss the principle of Flow Cytometry
- Differentiate between the different types of Lymphomas.

REFERENCES

- * **Clinical Hematology** (*Principles, Procedures, Correlations*).
E. Annestiene-Martin et al,
Lippincott Company.
- * **Hematology Links**
www.hematology.org
www.mdanderson.org
www.oncologychannel.com
www.medicinenet.com
www.hematologyatlas.com

STUDENT ASSESSMENT

Grades for this course will be based on the following 1, 2&6 criteria:

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

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

COURSE SYLLABUS

Week	Topic	Activities	Reading
WEEK 1			
R JAN 23	* WBC Anomalies (General Aspects) * Numerical anomalies of WBCs		Moodle (lecture)
WEEK 2			
T JAN 28	* Neutrophilia * Physiologic elevations of Neutrophils * Pathologic elevations of Neutrophils * Neutropenia		Moodle (lecture)
R JAN 30	* Eosinophilia * Basophilia * Lymphocytosis * Monocytosis		Moodle (Lecture)

WEEK 3

T FEB 4	<ul style="list-style-type: none"> * Morphological abnormalities of WBCs * Acquired anomalies * Congenital Conditions <ul style="list-style-type: none"> • Hypersegmentation • Pelger-Huet Anomaly • May Hegglin anomaly • Alder Reilly Anomaly • Chediak –Higashi Anomaly 		Moodle (Lecture)
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R FEB 6	* Case Studies		
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WEEK 4

T FEB 11	* Case Studies (Presentations)		
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T FEB 13	* Case Studies (Presentations)		
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WEEK 5

T FEB 18	<ul style="list-style-type: none"> * Introduction to Cancer * Types of Cancer 		Moodle (Lecture)
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R FEB 20	<ul style="list-style-type: none"> * Diagnosis of Cancer * Treatment of Cancer 		Moodle (Lecture)
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WEEK 6

T FEB 25	<ul style="list-style-type: none"> * Introduction to leukemia * Diagnosis and treatment of Leukemia * Predisposing factors to Leukemia 		Moodle (Lecture)
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R FEB 27	* ALL (Morphologic classification)		Moodle (Lecture)
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WEEK 7

T MAR 3	* Quiz I		
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R MAR 5	<ul style="list-style-type: none"> * ALL (Immunologic classification) * Chromosomal abnormalities * Prognosis 		Moodle (Lecture)
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WEEK 8

T MAR 10	* ANLL (FAB Classification) * M0 * M1 * M2		Moodle (lecture)
R MAR 12	* M3 * M4 * M5		Moodle (lecture)

WEEK 9

T MAR 17	* M6 * M7 * MDS		Moodle (lecture)
R MAR 18	* PAS * Myeloperoxidase * Sudan Black B * Non Specific Esterases * Specific Esterases		Moodle (lecture)

WEEK 10

T MAR 24	* Introduction to MPD(s) * Introduction to Chronic Myeloid Leukemia (CML) * CML (Chronic phase) * Clinical course * Lab findings		Moodle (lecture)
R MAR 26	* CML (Blastic transformation) * Clinical course * Lab findings * LAP * Juvenile CML		Moodle (lecture)

WEEK 11

T MAR 31	* Polycythemia Vera * MMM		Moodle (lecture)
R APR 2	* Idiopathic Thrombocytopenia * CNL		Moodle (lecture)

WEEK 12

T APR 7	* Flow Cytometry I		Moodle (lecture)
R APR 9	* Flow Cytometry II		Moodle (lecture)

WEEK 13

T APR 14	* Introduction to Lymphomas * Lymphoid Organs		Moodle (lecture)
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R APR 16	* Classification of Lymphomas		Moodle (lecture)
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WEEK 14

T APR 21	* Quiz II		
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R APR 23	* Case Studies (discussion)		
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WEEK 15

T APR 28	* Case Studies (presentation)		
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R APR	* Case Studies (presentation)		
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COURSE POLICY

1. **Attendance:** 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. *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.
3. **Withdrawal date:** please observe withdrawal dates set by the Registrar's Office.
4. **Academic integrity:** any act of cheating or plagiarism is a violation of academic integrity and will not be tolerated. Kindly refer to student handbook or refer to AUB Policies and Procedures on academic integrity.
<http://pmp.au.edu.lb/university/handbook/158010044.html>.
5. **Special needs:** if you have documented special needs and anticipate difficulties with the content or format of the course due to a physical or learning disability, please contact me and/or your academic advisor, as well as the Counseling Center in the Office of Student Affairs (Ext. 3196), as soon as possible to discuss options for accommodations. Those seeking accommodations must submit the Special Needs Support Request Form along with the required documentation.
6. **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 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.