

*American University of Beirut*  
Faculty of Health Sciences  
Medical Laboratory Sciences Program  
LABM 270 (Blood Banking)  
Spring AY 20

- **Lecturer**
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### **Course Description**

This course is part of a clinical laboratory rotation designed for medical laboratory technology students. It involves the study of the theory and practice of a wide variety of up to date procedures used in the field of blood banking and transfusion medicine.

This course will provide hands on experience in a modern hospital transfusion service laboratory, along with weekly tutorials, followed by comprehensive theoretical, oral and practical examinations.

### **General Instructional Objectives**

Blood Banking is designed to allow students to:

- 1- apply the theoretical knowledge of the principles and procedures of the routine blood bank testing
- 2- examine up to date testing procedures
- 3- how to research recent blood bank topics utilizing the different available library resources

## **Specific Learning Outcomes**

Upon completion of this course, students should be able to:

- 1.1- perform routine blood bank procedures utilized in pretransfusion testing
- 1.2- select several blood donors according to the criteria set in the blood bank section
- 1.3- analyze various case studies of antibody problems, hemolytic disease of the newborn and transfusion reactions
- 2.1- differentiate between the different quality control measures done on machines, reagents and blood components
- 2.2- describe the principles of ELISA and pheresis machines used in the blood bank section
- 3- give an oral presentation based on a research done using the following medical databases: Medline, CINAHL, PubMed, OPAC and journal finder

AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: : [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb); +961-1-350000, x3246; West Hall, 314

## Course Content

	<u>Week</u>	<u>Topics</u>	<u>Laboratory Activities under Supervision</u>
	<b>Week 1</b>	<p>ABO blood group system</p> <p>Subgroups of A</p> <p>ABO discrepancies and resolution techniques</p>	<p>- Do ABO blood group testing</p> <p>- Distinguish between the major subgroups of A</p>
	<b>Week 2</b>	<p>Antihuman globulin tests</p> <p>Enhancement reagents</p> <p>Elution/adsorption</p> <p>Donor Room</p> <p>Component preparation</p> <p>ABO home work</p>	<p>- Perform both direct and indirect antihuman globulin tests</p> <p>-Describe the preparation method and storage criteria of different blood components</p> <p>-Describe the criteria for blood unit rejection depending on the viral screening results</p> <p>-Select blood donors based on the criteria set in the section</p>
	<b>Week 3</b>	<p>Rh blood group system and weak D</p> <p>Other major blood group systems (Kell, Duffy, Kidd, Lewis, P, MNS, Lutheran )</p>	<p>- Perform Rh testing and check for weak D</p>
	<b>Week 4</b>	<p>Antibody Detection and identification</p> <p>Type &amp; screen</p>	<p>- Read different panel results</p> <p>- Check the different machines found in the blood bank section</p>

		Immediate Spin Major Crossmatch Cord blood testing	- Perform Immediate Spin - Perform the major cross match test
	<b>Week 5</b>	Immune Hemolytic Anemia HDN	- Perform supplementary practice for the practical exam
	<b>Week 6</b>	Irradiation and Filtration Autologous (donation) Apheresis procedures	-Observe Blood Bank filtration of a blood unit -Observe plateletpheresis
	EXTRA SESSION TBA	<b>Case studies</b>	- Practical exam on different blood samples under close supervision

## **Evaluation**

Each student's final grade will be a composite of:

Physical attendance 5%  
Participation and Interest 5%  
Laboratory Practical Exam 25%  
Theoretical Exam 65 %

## **Reference and Books**

- 1- Harmening Denise, Modern Blood Banking and Transfusion Practices, 6<sup>th</sup> ed. Philadelphia: F.A. Davis. 2014.
- 2- Blood Bank SOP and laboratory manual.
- 3- Student Handout

## **Course Policy**

**1- Prerequisite:** Students registering in this course should be familiar with basic principles of Immunology and Blood Banking (MLSP 207) and Diagnostic Serology (MLSP 259).

**2- Attendance:** -This practicum course requires 80 contact hours in the Blood bank section at the American University Hospital. The student is responsible for arranging to make up for the missing work. Excused absences may be given if the student provides valid reasons to explain their absence.

-Students are expected to attend all classes. In case of absence from any class, you are responsible for the work done and for any announcements that are made in the missed sessions.

**4- Exams:** Students must take exams on set dates. Make-up exams will be given only in case of emergencies or major illness. Only Authorized medical reports will be accepted.

**5- Dress Code:** Students will be expected to follow a dress code at the laboratory that follows the safety measures.

**6- Oral Presentation:** Students are expected to present an article in a scientific way. You must submit the search history. Failure to do so will result in a grade of 0/15 in the research project.

**7- Academic Integrity:** Cheating and plagiarism will not be tolerated. Review the student Code of Conduct in your handbook and familiarize yourself with definitions and penalties. If you are in doubt about what constitutes plagiarism, ask your instructor because it is your responsibility to know. The American University of Beirut has a strict anti-cheating policy. Penalties include failing marks on the assignment in question, suspension or expulsion from University and a permanent mention of the disciplinary action in student's records.

**8- Students with Disabilities:** "AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb); +961-1-350000, x3246; West Hall, 314".

