

Course Syllabus

1	Course title	Blood Bank & Transfusion
2	Course number	0308364
3	Credit hours	3 hrs
	Contact hours (theory, practical)	(2 theory, 3 practical/week)
4	Prerequisites/co-requisites	0308361
5	Program title	Clinical Laboratory Sciences
6	Program code	0308
7	Awarding institution	The University of Jordan
8	School	Science
9	Department	Clinical Laboratory Sciences
10	Course level	3 rd year
11	Year of study and semester (s)	Spring Semester 2023/2024
12	Other department (s) involved in teaching the course	
13	Main teaching language	English
14	Delivery method	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others: Google meet
16	Issuing/Revision Date	18.02.2024

17 Course Coordinator:

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18 Other instructors:

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19 Course Description:

As stated in the approved study plan.

This course will focus on the theory and practice needed to perform basic techniques to detect antigen-antibody reactions and how to perform ABO forward and reverse grouping, Rh grouping and the antiglobulin test (direct and indirect). This course will also focus on the theory of other blood group systems and procedures used to detect and identify antigens and antibodies and how to help diagnose, treat and prevent hemolytic disease in newborns.

20 Course aims and outcomes:

A- Aims:

- Perform basic techniques to detect antigen-antibody reactions in the Blood Bank Laboratory
- Detect and identify ABH antigens and antibodies and to recognize and resolve result discrepancies/anomalies
- Detect and identify Rh antigens and antibodies using the antiglobulin test when required and to recognize and resolve result discrepancies.
- Detect and identify ABH antigens and antibodies and to recognize and resolve result discrepancies/anomalies.
- Detect and identify Rh antigens and antibodies using the antiglobulin test when required and to recognize and resolve result discrepancies.
- Detect and identify antigens and antibodies in other blood group systems and to state the characteristic clinical significance of antibodies.
- Aid in the diagnosis, treatment and prevention of hemolytic disease of the newborn, and to aid in the diagnosis and treatment of other immune hemolytic anemias.

B- Students Learning Outcomes (SLOs):

For purposes of mapping the course SLOs to the CLS program SLOs, at the successful completion of the physics program, graduates are expected to be able to:

SLO(1). Understand and apply the theoretical foundations of medical laboratory sciences to accurately calibrate and operate advanced laboratory equipment.

SLO(2). Demonstrate knowledge of safety protocols, Ministry of Health regulations, and environmental preservation practices when handling samples of pathogens and chemical/biological risks.

SOL(3). Acquire in-depth technical knowledge to stay abreast of scientific advancements and actively participate in local and global applied research in the field.

SOL(4). Perform diverse analyses and effectively interpret results for various clinical samples across laboratory disciplines such as hematology, clinical chemistry, microbiology, urine analysis, body fluids, molecular diagnostics, and immunology.

SOL(5). Apply practical training to solve complex problems, troubleshoot issues, and interpret results, ensuring a connection between data and specific medical conditions for precise diagnosis.

SOL(6). Show effective communication skills to convey information accurately and appropriately in a laboratory setting.

SOL(7). Demonstrate a commitment to lifelong learning and innovation by applying modern techniques, critically analyzing information, and contributing to the creation and application of new knowledge in medical laboratory sciences which fulfill the requirements of national and international CBD.

SOL(8). Uphold professional ethical behavior, ensuring the confidentiality of client information, and respecting client privacy throughout all aspects of laboratory work.

SOL(9). Apply managerial skills that align with quality assurance, accreditation, quality improvement, laboratory education, and resource management, showcasing competence in the effective administration of laboratory practices.

Descriptors	ILO/ID	Program SLOs	SLO (1)	SLO (3)	SLO (4)	SLO (5)	SLO (6)	SLO (9)
		Course SLOs						
Knowledge	A1	Understand the different blood group systems, their antigens and antibodies.	X					
	A2	Become familiar with the blood donation, component preparation and immunohematological testing.		X	X			
Skills	B1	Analyze and differentiate the different blood groups, screen for their antibodies			X			
	B2	Able to perform compatibility testing and to communicate blood banking issues.				X	X	
Competence	C1	Apply knowledge to solve blood banking problems and errors including transfusion reactions.		X		X		
	C2	Demonstrate critical thinking skills to analyze blood banking issues, conduct related research and demonstrate lab management skills.				X		X

21. Topic Outline and Schedule:

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Introduction to Immunohematology and Related Genetics	A1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	1.2	Introduction to Immunohematology and Related Genetics	A1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	1.3	Introduction to Blood Bank Lab	A2	Face to Face		Synchronous	Exams and quizzes	
2	2.1	Introduction to Immunohematology and Related Genetics	A1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	2.2	Principles of Antigens and Antibodies	A1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	2.3	Donor History and Physical exam	A2	Face to Face		Synchronous	Exams and quizzes	
3	3.1	Principles of Antigens and Antibodies	A1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1

	3.2	The ABO and H blood Group systems	A1, A2, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	3.3	Blood Donation	A2	Face to Face		Synchronous	Exams and quizzes	
4	4.1	The ABO and H blood Group systems	A1, A2, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	4.2	The ABO and H blood Group systems	A1, A2, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	4.3	Blood Component Preparation	A2	Face to Face		Synchronous	Exams and quizzes	
5	5.1	The Rh Blood Group System	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	5.2	The Rh Blood Group System	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	5.3	Hemagglutination reactions	A2	Face to Face		Synchronous	Exams and quizzes	
6	6.1	The Rh Blood Group System	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	6.2	Minor Blood Groups	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	6.3	Forward ABO Grouping	A2, B1	Face to Face		Synchronous	Exams and quizzes	
7	7.1	Minor Blood Groups	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	7.2	Minor Blood Groups	A1, B1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	7.3	Reverse ABO Grouping	A2, B1	Face to Face		Synchronous	Exams and quizzes	
8	8.1	The Antiglobulin Test	B2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	8.2	The Antiglobulin Test	B2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	8.3	Rh typing and weak D testing	A2, B1	Face to Face		Synchronous	Exams and quizzes	
9	9.1	Mid-Term Exam		Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	9.2	Hemolytic Diseases	B2, C1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	9.3	Mid-Term Exam		Face to Face		Synchronous	Exams and quizzes	
10	10.1	Hemolytic Diseases	B2, C1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	10.2	Compatibility Testing	B2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	10.3	Rh phenotyping and genotyping	A2, B1	Face to Face		Synchronous	Exams and quizzes	
11	11.1	Compatibility Testing	B2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	11.2	Blood Donation	A2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	11.3	Antiglobulin Test	B1, B2	Face to Face		Synchronous	Exams and quizzes	
12	12.1	Blood Donation	A2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1.
	12.2	Blood Components	A2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1

	12.3	Antibody Screening	B1, B2	Face to Face		Synchronous	Exams and quizzes	
13	13.1	Transfusion Administration	B2, C1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	13.2	Transfusion Administration	B2, C1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	13.3	Cross-Match	B1, B2	Face to Face		Synchronous	Exams and quizzes	
14	14.1	Transfusion Reactions	C1, C2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	14.2	Transfusion Reactions	C1, C2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	14.3	Identification of antibodies	B1, B2	Face to Face		Synchronous	Exams and quizzes	
15	15.1	Transfusion Transmitted Diseases	C1	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	15.2	Quality Assurance in Blood banking	C2	Face to Face	Moodle	Synchronous	Exams and quizzes	Ref. 1
	15.3	Donor Blood testing	A2	Face to Face		Synchronous	Exams and quizzes	

22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Assignments					
Quizzes					
Lab Reports	30		A2, B1, B2		On Campus
First Exam					
Second Exam or (Mid Exam)	30		A1, A2, B1, B2	Week 8	On Campus
Final Exam	40	All material	All SLOs		On Campus

23 Course Requirements

- **Students should have a computer, internet connection, account on Moodle**

Development of ILOs is promoted through the following teaching and learning methods

1. Power point lectures
2. Videos
3. Journal articles
4. Clinical Cases
5. E-learning (Moodle)

24 Course Policies:

A- Attendance policies: Attendance of lectures and lab sessions is obligatory. Attendance will be taken each class.

B- Absences from exams and submitting assignments on time: Not accepted.

A student who has been absent for 15% or more of the total hours of any course, including absences for medical or compassionate reasons, may be required to withdraw from that particular course.

Students who miss quizzes or examinations will automatically be assigned a mark of zero unless the respective instructor, or the Program Head, has been notified of the reason for absence *PRIOR* to the commencement of the exam. Acceptable reasons will be evaluated at the time (e.g., illness - medical certificate may be required, serious illness or death in the family, etc.). Supplemental examinations may be allowed in legitimate cases.

C- Health and safety procedures:

All students need to be immunized against hepatitis B, immunization certificate must be forwarded to the coordinator of the hospital training. Pregnancy affects immunization and it is the responsibility of the student to notify the health person as soon as possible of her pregnancy. If there are fees related to immunization, it is the responsibility of the student.

D- Honesty policy regarding cheating, plagiarism, and misbehavior: Very strong.

E- Grading policy: 70% theory, 30% practical

F- Available university services that support achievement in the course:

- The University Computer Lab.
- The University Main Library.
- The University e-library.

25 References:

A- Required book(s), assigned reading and audio-visuals:

- 1. Basic and Applied Concepts of Blood Banking and Transfusion Practices, 4th Ed.**
- 2. Modern Blood Banking and Transfusion Practices, 7th Ed.**

B- Recommended books, materials, and media:

1. Rossi's Principles of Transfusion Medicine (2016)
2. Immunohematology for Medical Laboratory Technicians-(2009)

26 Additional information:

Name of Course Coordinator: **Dr. Zaid Aburubaiha**

Signature: *Aburubaiha Zaid* Date: 1/2024

Head of Curriculum Committee/Department: **Dr. Suzan Matar**

Signature: *Suzan Matar*

Head of Department: **Dr. Ahmed Abu siniyeh**

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Head of Curriculum Committee/Faculty: **Dr. Mu'ayyad Al Hseinat** Signature: *Mu'ayyad Al Hseinat*

Dean: **Prof. Mahmoud Jaghoub**

Signature: *Mahmoud Jaghoub*