



Course Syllabus

1	Course title	Histological Microtechniques
2	Course number	0308212
3	Credit hours	2 (1 theory, 1 practical)
	Contact hours (theory, practical)	1 theory, 3 practical / week
4	Prerequisites/co-requisites	Histology (0308211)
5	Program title	Clinical Laboratory Sciences
6	Program code	0308
7	Awarding institution	The University of Jordan
8	School	Science
9	Department	Department of Clinical Laboratory Sciences
10	Course level	2 nd Year
11	Year of study and semester (s)	Fall 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 checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	Issuing/Revision Date	2/2024

17 Course Coordinator:

Name: Dr. Ahmed Abu siniyeh	Contact hours: Sunday & Tuesday 11:30 – 14:00 pm
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18 Other instructors:

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19 Course Description:

This course explores histological techniques crucial for clinical laboratory applications, guiding students through the intricate process of preparing permanent slides of animal and human tissues. Covering a range of methodologies from initial preparations to advanced techniques such as cryostat sectioning, students gain hands-on experience in fixation, washing, dehydration, embedding, and microtomy. The curriculum emphasizes practical proficiency, ensuring students develop a comprehensive skill set for the effective examination and analysis of cells and tissues in clinical laboratory settings. Also, this course cover different types of microtome used in addition to mentioning errors and trouble shoots that occur during handling specimens in the lab.



20 Course aims and outcomes:

A- Aims:

This course aims to equip students with comprehensive knowledge and hands-on experience in histological techniques for clinical laboratory applications, covering the preparation of permanent slides from both animal and human tissues. Emphasis is placed on practical proficiency, guiding students through fixation, washing, dehydration, embedding, and advanced techniques like cryostat sectioning. The curriculum also includes the exploration of various microtome types and addresses potential errors and troubleshooting strategies encountered during specimen handling in the laboratory. By the course's end, students will possess a well-rounded skill set for effective cell and tissue examination in clinical settings.

B- Students Learning Outcomes (SLOs):

For purposes of mapping the course SLOs to the Clinical Laboratory Sciences program SLOs, at the successful completion of the 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 fulfil the requirements of national and international CBD.

SOL(8). Uphold professional 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				
		Course SLOs	SLO (1)	SLO (3)	SLO (5)	SLO (7)
Knowledge	A1	Remember the fundamental steps in histological techniques, including fixation, washing, dehydration, embedding, and microtomy.	X			
	A2	Understand the diverse methodologies involved in preparing permanent slides from both animal and human tissues, and identify different types of microtomes.		X		
Skills	B1	Apply hands-on skills in fixation, washing, dehydration, embedding, and microtomy, demonstrating proficiency in executing histological procedures.		X		
	B2	Analyze potential errors and troubleshoot issues that may arise during specimen handling in the laboratory, showcasing problem-solving skills.			X	
Competence	C1	Evaluate the effectiveness of different microtome types for specific applications, demonstrating competence in equipment selection.				X
	C2	Develop competence in the comprehensive examination and analysis of cells and tissues in clinical laboratory settings, integrating theoretical knowledge with practical skills for accurate diagnostics.				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 Microtechnique	A2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
2	2.1	Tissue preparation (1)	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
	2.2	Practical	A1, A2, B1	Face to Face	Lab	Synchronous	Quiz, Exam	Ref (1)
3	3.1	Tissue preparation (2)	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
	3.2	Practical	A1, A2, B1	Face to Face	Lab	Synchronous	Quiz, Exam	Ref (1)
4	4.1	Tissue preparation (3)	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
	4.2	Practical	A1, A2, B1	Face to Face	Lab	Synchronous	Quiz, Exam	Ref (1)
5	5.1	Tissue processing	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)

	5.2	Practical	A1, A2, B1	Face to Face	Lab	Synchronous	Quiz, Exam	Ref (1)
6	6.1	Trimming and Sectioning	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
	6.2	Practical	A1, A2, B1	Face to Face	Lab	Synchronous	Quiz, Exam	Ref (1)
7	7.1	Mounting and staining	A1, A2, B1	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
	7.2	Practical	A1, A2, B1	Face to Face	Lab			Ref (1)
8	8.1	Tissue Freezing methods for Cryostat sectioning	A2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
9	9.1	Cytopathology	C2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
10	10.1	Immunohistochemistry	C2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
11	11.1	Steps for better Histology	B2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
12	12.1	Examine and evaluate the student's prepared slides	A1,A2,B1, B2,C1,C2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
13	13.1	Examine and evaluate the student's prepared slides	A1,A2,B1, B2,C1,C2	Face to Face	Lecture Room	Synchronous	Quiz, Exam	Ref (1)
14		FINAL EXAM						

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
Lab Reports	20		All SLOs	Every week	On campus
First Exam	15		A1, A2, B1	Week 5	On campus
Second Exam	15		A1, A2, C1	Week 8	On campus
Final Exam	50	All required chapters	All SLOs	Week 16	On campus



23 Course Requirements

Students are directed and encouraged to use all possible resources:

- use the internet as a learning source.
- a series of short movies is promoted
- students are encouraged to learn a suitable software package as a learning tool.

24 Course Policies:

A- Attendance policies:

- Attend and participate in all classes: attendance will be taken. Class time will be used to discuss, elaborate, expand, etc., on the written modules. This may include formal/informal lectures, audio visual presentations, demonstrations, labs, etc.

B- Absences from exams and handing in assignments on time:

- 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, misbehavior:

E- Grading policy:

Evaluation	Point %	Date
First Exam	15%	Will be announced in due time.
Second Exam	15%	Will be announced in due time.
Lab Reports	20%	
Final Exam (Theory and practical)	50%	Will be announced in due time.



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

1. Microtechnique Lab.
2. The University Main Library.
3. The University e-library.

25 References:

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

- 1.S. Kim Suvarna 2019 Bancroft's Theory and Practice of Histological Techniques 8th Edition, Elsevier Limited

B- Recommended books, materials, and media:

- 2.Mescher A., L.2013 Junqueira's Basic Histology Text &Atlas 13th Edition. McG Hill LANGE. International Edition, New York etc.

26 Additional information:

Name of Course Coordinator: **Dr. Ahmed Abu siniyeh**

Signature: *Ahmed Abu siniyeh* Date: 2-2024

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

Signature: *Suzan Matar*

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

Signature: *Ahmed Abu siniyeh*

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

Dean: **Prof. Mahmoud Jaghoub**

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