



**Umm Al-Qura University**  
**College of Applied Medical Sciences**  
**Department of Laboratory Medicine**



**Pathology Course Overview**

<b>Course code and number:</b>	1701312-8
<b>Course title:</b>	Pathology and Histo-Cyto techniques
<b>Level/semester:</b>	3 <sup>rd</sup> year (Full year)
<b>Credit hours:</b>	8hours /week
<b>Instructor:</b>	Dr. Mohammed Basalama ,Mr. Shakir Idris , Mrs. Lmya Elshiekh
<b>Office Hours:</b>	6 hours (Tuesday and Wednesday)
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### **Overview**

#### **General pathology:**

This course is intended to cover the capabilities of knowledge (understanding the general principles, terminology, diagnostic procedures, and basic concepts of pathology ,(identifying pathological processes at the cellular and gross anatomical level and correlating these with the clinical symptoms and signs). The course will introduce the concepts of injury and the changes from normal structure and function in the human body, as occurs in disease. The various pathological processes (cellular adaptations, tissue injury and renewal, neoplasia, environmental and nutritional pathology) and their importance in the basis of human disease will be studied.

### **Course Objectives**

#### **Upon the completion of the course, the student should be able to:**

1. define pathology and cellular pathology.
2. understand the concept of disease and healing and repair.
3. define morbidity and mortality and distinguish between them and have a general understanding of which diseases/disorders cause the greatest mortality and morbidity.
4. understand and be able to define some of the commonly used terms and vocabulary used to describe various aspects of disease (e.g. signs, symptoms, etiology, pathogenesis, manifestations, prognosis).
5. discuss broadly the causes of disease and the categories under which they can be considered.
6. describe pathological mechanisms underlying disease processes (cell injury, inflammation, immunity, neoplasia, vascular disturbances (congestion, hyperemia, edema, thrombosis, ischemia, shock and hemorrhage), metabolic and nutritional diseases, congenital and genetic diseases.
7. Understand some of the clinical manifestations of pathological processes.

## **Overview**

### **Histo-cyto techniques (Theory and Practical ):**

This course offers a well-rounded educational experience by offering high-quality didactic, student laboratory, and clinical experiences to produce a highly trained and skilled histotechnologist. safety method in handling specimens in addition to methods of preparation and demonstration. Instruction on accessioning, gross techniques, fixation, tissue processing, embedding, routine and special staining, immunohistochemistry, molecular techniques, troubleshooting, cytology preparation ( FNA, PAP smear, body fluid and effusion), problem solving and special techniques will encompass the student's training.

### **Course Objectives :**

#### **Upon the completion of the course, the student should be able to:**

1. Demonstrate knowledge, comprehension, application and entry-level competency in general histological techniques in the areas of:
  - specimen receipt
  - fixation of tissues
  - decalcification of tissues
  - processing of tissues
  - microtomy of paraffin embedded tissues
  - cryotomy of frozen tissues
  - H&E stain and special stains
  - Immunohistochemistry and advance techniques
  - cover slipping, labeling and storage of slides and blocks
2. Use appropriate terminology as applied to general histological techniques.
3. Describe the purpose and methods utilized in general histological techniques.
4. Set-up, operate and maintain routine histology instruments.
5. Solve basic problems associated with reagents and methods of general histology techniques.
6. Perform appropriate methods of quality control while performing general histology techniques.
7. Consistently apply principles of lab safety in completing all laboratory work.

**Course Description:**

**Pathology and Histo-Cyto Techniques Syllabus  
Third Year Laboratory Medicine Students  
Academic Year 1435 – 1436 A.H  
First Term**

<b>W</b>	<b>Date</b>	<b>Pathology</b>	<b>Pre-lab</b>	<b>Practical</b>	<b>Notes</b>
1.	5/11	Introduction to pathology Course	Lab safety	Lab safety practices	
2.	12/11	Introduction to pathology	Introduction to Histotechnology	A view on basic histo-techniques	
3.	19/11	Cell Injury	Fixation - I	Preparing of most common fixatives	
4.	26/11		Fixation - II	National day Vacation	
5.	4/12		Decalcification	End point test of decalcification	
6.	<b>Hajj Vacation (5/12/1434 to 15/12/1434 will be revision days)</b>				
7.	18/12	Inflammation	Processing	Tissue Processor and specimen processing	
8.	25/12		Embedding	Embedding center & specimen embedding	Q1
9.	2/01		Microtomy	Practical Tissue-block cutting	
10.	9/01		Practical Tissue-block cutting	Practical Tissue-block cutting	
11.	16/01	Healing and Repair	Frozen Section	Practical Tissue-block cutting	Q2
12.	23/01		Theory of Staining	Practical Tissue-block cutting	
13.	1/02		H&E	Practical H&E staining slides	QP1
14.	8/02		Final part 1- Practical Exam		
15.	15/02	Revision	Final part 1- Pre-lab Exam		
16.	22/02	Final part 1 Theory Examinations			
17.	29/02				
<b>Mid Term Vacation</b>					

Q = Theory Quiz Exam

OP = Pre-lab Quiz Exam

**Pathology and Histo-Cyto Techniques Syllabus**  
**Third Year Laboratory Medicine Students**  
**Academic Year 1435 – 1436 A.H**  
**Second Term**

<b>W</b>	<b>Date</b>	<b>Pathology</b>	<b>Pre-lab</b>	<b>Practical</b>	<b>Notes</b>
1.	5/04	Hemodynamic	Special Stain (Carbohydrates)	PAS Stain	
2.	12/04		Special Stain (Carbohydrates)	Alcian Blue Stain	
3.	19/04		Connective Tissue (Collagen Fibers)	Masson Trichrome Stain	
4.	26/04	Neoplasia	Connective Tissue (Elastic Fibers)	Verhoeff's Stain	Q3
5.	3/05		Connective Tissue (Reticulum Fibers)	G&S Stain	
6.	10/05		Special Stain (Pigment)	Perl' Prussian Stain	
7.	17/05		Special Stain (Lipids)	Van Gieson Stain Sudan Black Stain	
8.	24/05	<i>Revision</i>	<i>Revision</i>	<i>Revision</i>	Q4
9.	<b>Spring Vacation</b>				
10.	9/06	Genetic Diseases	Principle of Immunohistochemistry	IHC Techniques	
11.	16/06		IHC Techniques	IHC Techniques	
12.	23/06		Cytotechnology	Pap stain	
13.	30/06		Principles of electron microscope	<i>Revision</i>	QP2
14.	7/07		Molecular Techniques	<i>Revision</i>	
15.	14/07	<i>Revision</i>	Final Part II - Practical Exam		
16.	21/07	<i>Revision</i>	Final Part II - Pre-lab Exam		
17.	28/07	Final Theory Examinations			
18.	6/08	Final Theory Examinations			
<b>Summer Vacation</b>					

Q = Theory Quiz Exam

OP = Pre-lab Quiz Exam

## **Evaluation:**

The marks stated below are divided into two, half for each semester.

❖ <b>General pathology</b>	<ul style="list-style-type: none"><li>● Periodical Exams (Quizzes)..... 20 %</li><li>● Final written Exam.....25%</li></ul>
❖ <b>Histo-cyto techniques (Theory and Practical )</b>	<ul style="list-style-type: none"><li>● Periodical Exams (Quizzes) .....10%</li><li>● Final Practical Exam .....10%</li><li>● Student note and Laboratory reports .....5%</li><li>● Student Continuous Evaluation .....10%</li><li>● Final written Exam .....20%</li></ul>

## **Learning Resources**

### **Required Text(s).**

- ❖ Robbins Basic Pathology (9 Edition), by Kumar, Abbas, Aster.
- ❖ Histotechnology: A Self-Instructional Text (3rd Edition), by Freida L. Carson, Christa Hladik.
- ❖ Theory and Practice of Histological Techniques (6 Edition), by John D. Bancroft , Marilyn Gamble.