



مركز الاعتماد  
و ضمان الجودة  
ACCREDITATION & QUALITY ASSURANCE CENTER



**The University of Jordan**

**Accreditation & Quality Assurance Center**

## **Course Syllabus**

**Course Name:**  
**Introduction to**  
**Pathology**

1	Course title	Introduction to Pathology
2	Course number	0504205
3	Credit hours (theory, practical)	2
	Contact hours (theory, practical)	9/week
4	Prerequisites/corequisites	1201354
5	Program title	Medical Doctor MD
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Faculty of Medicine
9	Department	Dept. of Pathology, Microbiology, & Forensic Medicine
10	Level of course	Undergraduate
11	Year of study and semester (s)	2nd year, 1st semester
12	Final Qualification	MD
13	Other department (s) involved in teaching the course	NA
14	Language of Instruction	English
15	Date of production/revision	24/11/16

### 16. Course Coordinator:

*Office numbers, office hours, phone numbers, and email addresses should be listed.*

**Name:** Dr. Mazin Al-Salihi  
**Office Number:** Faculty of Medicine 2, 103  
**Office Phone:** 23412  
**E-mail:** [m.alsalihi@ju.edu.jo](mailto:m.alsalihi@ju.edu.jo)  
**Office hours:** Sunday 8am-10am, 11am-noon  
Monday 8am-9am, noon-1pm  
Tuesday 8am-10am, 11am-noon  
Wednesday 8am-9am

### 17. Other instructors:

*Office numbers, office hours, phone numbers, and email addresses should be listed.*

Dr. Heyam Awad JUH pathology dept. 3<sup>rd</sup> floor heyamawad2000@yahoo.com  
Dr. Manar Hajeer JUH pathology dept. 3<sup>rd</sup> floor m.hajeer83@hotmail.com

### 18. Course Description:

*As stated in the approved study plan.*

This course covers the study of cell injury including its types, causes, and mechanisms, cellular adaptation to growth and differentiation, inflammation including its types and mechanisms, cellular healing, infections and its causes and characteristics, tumors and neoplasia, types of cancer, its mechanisms of occurrence, characteristics and epidemiology.



<b>Topics</b>		<b>Ch/Pg</b>
1. Course Orientation & Introduction		
2. Homeostasis, Adaptation, & Cell Death	<ul style="list-style-type: none"> <li>•Principles</li> <li>•Adaptive Responses (Hypertrophy, Hyperplasia, Atrophy, Metaplasia)</li> <li>•Cell Injury (reversible/irreversible)</li> <li>•Cell Death</li> <li>•Morphology of Cell Death</li> </ul>	<b>Ch1</b> Pg. 1-5 Pg. 8-11
3. Cell Injury & Death	<ul style="list-style-type: none"> <li>•Causes</li> <li>•Principles &amp; mechanisms (Mitochondria, Ca<sup>2+</sup>, Free radicals &amp; ROS, Membrane damage)</li> <li>•Mechanisms in practice (Hypoxia Ischemia, Reperfusion, Chemical)</li> </ul>	Pg. 6-7 Pg. 11-18
4. Apoptosis	<ul style="list-style-type: none"> <li>•Definition</li> <li>•Principles</li> <li>•Causes</li> <li>•Mechanisms (Mitochondrial, Death receptor)</li> <li>•Mechanisms in practice (Growth factor deprivation, DNA damage, Protein damage, role in immunity)</li> <li>•Necroptosis</li> </ul>	Pg. 18-22
5.	<ul style="list-style-type: none"> <li>•Autophagy</li> <li>•Intracellular accumulations</li> <li>•Pathologic calcification</li> <li>•Cellular aging</li> </ul>	Pg. 22-28
6. Inflammation	<ul style="list-style-type: none"> <li>• Overview of inflammation and</li> <li>• Vascular changes</li> </ul>	<b>Ch2</b> Pg. 29-34
7. inflammation	<ul style="list-style-type: none"> <li>• Cellular events in inflammation</li> </ul>	Pg. 35-40
8. Chemical mediators..1	<ul style="list-style-type: none"> <li>• Cell derived mediators</li> </ul>	Pg. 44-50
9. Chemical mediators 2	<ul style="list-style-type: none"> <li>• Plasma derived mediators</li> <li>• Morphology of acute inflammation</li> </ul>	Pg. 50-53 Pg. 43-44
10. Chronic inflammation and systemic effects of inflammation		Pg. 53-59
11. Cell proliferation in tissue repair	<ul style="list-style-type: none"> <li>•Overview of tissue repair</li> <li>•Cell proliferation</li> <li>•Stem cells</li> <li>•Growth factors</li> </ul>	Pg. 58-62
12. Role of the ECM in tissue repair	<ul style="list-style-type: none"> <li>•Extracellular matrix</li> <li>•Structure</li> <li>•Components</li> <li>•Function</li> </ul>	Pg. 63-65

	<ul style="list-style-type: none"> <li>•Regeneration in tissue repair</li> <li>•Overview of tissue response to injury - revisited</li> </ul>	
13 & 14 Scarring & Fibrosis	<ul style="list-style-type: none"> <li>•Steps</li> <li>•Angiogenesis</li> <li>•Activation of fibroblasts &amp; ECM deposition</li> <li>•Maturation &amp; remodelling</li> <li>•Factors influencing tissue repair</li> <li>•Clinical examples</li> </ul>	Pg. 66-72
15. Neoplasia	<ul style="list-style-type: none"> <li>•Definition &amp; Nomenclature</li> <li>•Benign &amp; Malignant neoplasia</li> <li>•Characteristics</li> <li>•Differentiation &amp; Anaplasia</li> <li>•Rate of growth</li> <li>•Local invasion</li> <li>•Metastasis</li> </ul>	<b>Ch5</b> Pg. 161-169
16. Epidemiology & introduction to the molecular biology of cancer	<ul style="list-style-type: none"> <li>•Epidemiology</li> <li>•Environment</li> <li>•Age</li> <li>•Heredity</li> <li>•Acquired pre-neoplastic lesions</li> </ul>	Pg. 169-173
17. Genetics & epigenetics of cancer	<ul style="list-style-type: none"> <li>•Molecular Biology of Cancer (introduction)</li> <li>•Karyotypic changes</li> <li>•Translocation</li> <li>•Deletion</li> <li>•Amplification</li> <li>•Aneuploidy</li> <li>•miRNA</li> <li>•Epigenetic changes (methylation)</li> <li>•Molecular Biology of Cancer (initiation &amp; progression)</li> <li>•Hallmarks of Cancer (introduction)</li> </ul>	Pg. 173-178
18. Hallmarks of Cancer - Growth & Growth inhibition	<ul style="list-style-type: none"> <li>•Growth factors &amp; their receptors</li> <li>•Signal transduction &amp; transcription</li> <li>•Cell cycle control (cyclins &amp; CDKs)</li> <li>•The first tumor suppressor gene: RB</li> </ul>	Pg. 178-184
19. Hallmarks of Cancer - Growth inhibition & Evasion of death	<ul style="list-style-type: none"> <li>•Guardian of the genome: p53</li> <li>•TGF<math>\beta</math> signalling</li> <li>•Contact inhibition: NF2 &amp; APC</li> <li>•Evasion of cell death</li> </ul>	Pg. 185-190
20. Hallmarks continued	<ul style="list-style-type: none"> <li>•Limitless replicative potential</li> <li>•Development of sustained angiogenesis</li> <li>•Ability to invade and metastasize</li> </ul>	Pg. 190-195

21. New Hallmarks	<ul style="list-style-type: none"> <li>•Reprogramming Energy Metabolism</li> <li>•Evasion of the Immune System</li> <li>•Genomic instability</li> <li>•Inflammation</li> </ul>	Pg. 195-198
22. Etiology of cancer	<ul style="list-style-type: none"> <li>•Chemical</li> <li>•Radiological</li> <li>•Microbial</li> <li>•Oncogenic viruses</li> <li>•<i>H. Pylori</i></li> </ul>	Pg. 198-204
23. Tumor immunity	<ul style="list-style-type: none"> <li>•Tumor antigens</li> <li>•Cell mediated immunity</li> <li>•Immune surveillance &amp; evasion</li> </ul>	Pg. 204-207
24. Clinical aspects of neoplasia	<ul style="list-style-type: none"> <li>•Systemic effects</li> <li>•Grading &amp; staging</li> <li>•Lab diagnosis including molecular methods</li> </ul>	Pg. 207-213

### 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:  
Lectures, Discussions, Oral quizzes, Learning through examination

### 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:  
Oral Quizzes, Midterm exam, Final Exam

### 23. Course Policies:

A- Attendance policies:

Standard university attendance policy

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

Exam absence is handled by the excuses committee

C- Health and safety procedures:

NA

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Cheating is not tolerated and university policy is enforced.

E- Grading policy:

Curve based on standard deviation and faculty policy regarding percentage of students per grade and grade cutoffs

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

each academic faculty member website contains course material & announcements

#### 24. Required equipment:

NA

#### 25. References:

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

Robbins Basic Pathology 9th Edition

B- Recommended books, materials, and media:

Presentation slides act as a visual study aid.

#### 26. Additional information:

**Expected workload:**

On average you should expect to spend between 3 and 5 hours per week on this course.

Name of Course Coordinator: Dr. Mazin Al-Salihi Signature: MA Date:24/11/2016

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department  
Assistant Dean for Quality Assurance  
Course File