

The Hashemite University



الجامعة الهاشمية



Deanship of Academic Development
and International Outreach

عمادة التطوير الأكاديمي والتواصل الدولي

Syllabus

General Pathology 1 and Code 11150202

First Semester

2024/_2025

COURSE INFORMATION	
Course Name: General pathology Semester: First Department: Department of Microbiology , pathology and forensic medicine Faculty: Faculty of medicine	Course Code: 111501202 Section: 2 nd year medical students and dentistry college students - Two sections Core Curriculum: 3 Credits (theory)
Day(s) and Time(s): Sunday: 9:30-1:30 Tuesday :9:30-1:30 Thursday : 9:30-1:30 Classroom: الطب البشري العلوم المسانده	WEEKS/1 st . SEMESTER /2024-2025 16 Course Coordinator Dr. Ghada Nazar Al-Jussani Assistant professor in Histopathology and Cytopathology. MBCHB., FRCPATH (UK), European board in pathology, Jordanian board in pathology, Iraqi Board in pathology, Fellowship of Royal College of Pathologist (UK) Subspecialty in breast pathology from KHCC and UK Office location: Office number 3036, 3 rd floor, Department of Microbiology, Pathology, and Forensic Medicine Dr.Ola Abu Al Karsaneh Assistant Professor of Pathology Department of Microbiology, Pathology and Forensic Medicine Office: 1017, 1 st floor olaa@staff.Hu.edu.jo Office Hours: Sun 10-12 and Tus: 10-12

COURSE DESCRIPTION

Pathology is a branch of Medicine that deals with the scientific study of the causes, pathogenesis (mechanisms), and structural and functional changes of human organs and tissues in various diseases. Therefore, it is one of the main foundations of Medicine and serves to bridge basic medical disciplines with clinical sciences. Pathology as a whole is divided into two parts: General Pathology and Systemic Pathology. General Pathology will be covered in this course. It deals with disease processes in general and describes the molecular, ultrastructural, cellular, and tissue reactions to different injurious agents.

Pathology is the comprehensive study of the causes and effects of diseases or injuries. It refers to the general study of diseases and covers various biological research fields and medical practices. Pathology, as a field, plays a pivotal role in genetic studies related to cancer, outcomes, survival, and prognosis. This underscores the forward-thinking approach of pathology and its significant impact on cancer research, making it an exciting and impactful field to be a part of.

DELIVERY METHODS

The course will be delivered through a combination of active learning strategies. These will include

- PowerPoint lectures and active classroom based discussion
- Relevant films and documentaries
- Video lectures
- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team
- Live session is frequently done to discuss clinical cases with the students, encouraging them to analyze the cases, interact with the tutor and try to solve clinical problems, it is a way to trigger and stimulate their critical thinking

FACULTY INFORMATION

Name	Dr. Ghada Al-Jussani
Academic Title:	Assistant professor
Office Location:	Second floor ,3036
Telephone Number:	0799443711
Email Address:	ghadah@hu.edu.jo . ghadahmed2000@gmail.com .
Office Hours:	Sunday variable (9:30-1:30) Tuesday variable (9:30-1:30)

Please send an e-mail (ghadah@hu.edu.jo) to meet at any other time.

REFERENCES AND LEARNING RESOURCES

:Required Textbooks

- .Robbins Basic Pathology, 11th. Edition 2017. By Kumar, et al. Saunders -
- Supplementary. Departmental Handouts -
- .Rosai & Ackerman's Surgical Pathology .11th edition -
- .R.C. Curran, color atlas of Histopathology. Oxford University -
- .Color Atlas of Gross Pathology. Oxford -

STUDENT LEARNING OUTCOMES MATRIX*

Core Curriculum Learning Outcomes	Program Learning Outcomes	Course Objectives	Course Student Learning Outcomes
<p>Development of ILOs is promoted through the following teaching and learning methods:</p> <ol style="list-style-type: none"> 1. The student should be familiar with the terms used in the study of Pathology. 2. The student should be familiar with basic knowledge concerning the main structures, tissues and organs. 3. The student should be oriented with the body tissue, organs and basic pathology and diseases. 	<p>Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to:</p> <p>Define Pathology To understand basic tissue reactions to different types of injuries. To know the etiology i.e. causes of major diseases. To understand why the diseases happen? To know the pathogenesis (mechanism) of disease process.</p>	<p>Cell Injury, 9 lectures lectures 3 lecture per week</p> <p>3 lectures adaptation , causes of cell injury , types</p>	<p>Cell injury, cell death & adaptations: (In chapter 1), including introduction to pathology, cellular responses to stress & noxious stimuli; cellular adaptation to stress, causes, morphology, mechanisms and examples of cell injury and necrosis; apoptosis, intracellular accumulations, pathological calcification and cellular aging</p>
		<p>Reversible Irreversible injury Types of necrosis Apoptosis (3 lectures)</p>	<p>Discuss & enumerate cellular adaptations and describe each type, hypertrophy, hyperplasia, atrophy,</p>

<p>4. The student should be familiar with basic knowledge of general pathology Including: cell structure, pathological terms, necrosis, apoptosis, cell injury, intracellular accumulation, types of necrosis, inflammation, tissue healing and repair, hemodynamic, oedema, congestion, thrombosis, embolism, shock.</p> <p>5. To understand neoplasia, malignant and benign tumours, different in between both types, route of spread of malignant tumours, way of investigations, immunohistochemistry.</p> <p>To achieve the above goals, the following will be used: Teaching movies and CDs and E-format lectures. Available university services that support achievement in the course: Laboratories, Microscopes, Data show, power point, Lap tops, Gross specimens</p>	<p>To understand how the diseases happen? To describe the morphological features (the gross & microscopic & ultrastructural changes) produced by the disease. To describe the effects of the disease on the functions of organs. To know the outcome & the possible complications of the disease. Discussing the clinical aspect of each disease or pathological changes that lead to disease by giving students various clinical scenario through clinical cases , and try to motivate the students in the lecture hall and by giving them short quizzes in order to know how to correlate the pathology of disease with clinical practice and how to analyze the clinical data regarding sign and symptoms of the patients with laboratory finding or pathological changes in the tissue to reach the diagnosis by this we could prepare our students for their future clinical practice</p>		<p>and metaplasia and mention their clinical significance. Enumerate the types of injurious agents that cause cell injury. and mention their exact role in cell injury Define reversible & irreversible cell injury, mention their gross, microscopical and ultrastructural features with clinical significance.</p> <p>Define hydropic degeneration & Fatty changes, and describe their gross & microscopic features</p> <p>Necrosis and apoptosis, differentiate between both and describe nuclear changes in necrosis, types of necrosis, clinical correlation and significance</p> <p>Apoptosis, nuclear changes, physiological and pathological causes of it Discuss the subcellular injury of mitochondria, cytoplasmic organelles, cell membrane and DNA</p>
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		Pattern of necrosis Intracellular accumulation and aging 3 lectures	Discuss Pattern of necrosis including coagulative, liquefactive, caseating, gangrenous, fibrinoid and fat necrosis and their clinical significance Discuss and describe intracellular accumulation Definition of senescent cells and aging
		Inflammation 9 lectures Types,of Cellular changes Vascular changes 3 lectures	Acute and chronic inflammation. Healing & Tissue repair: (In chapters 2 total of 8 Lectures) <ul style="list-style-type: none"> Define inflammation, mention the causes, the types acute, chronic & subacute. The cardinal signs & nomenclature Discuss the vascular & cellular responses in acute inflammation Discuss the causes of increased vascular permeability Discuss the mode of leukocytes cell margination, sticking & rolling, immigration, chemotaxis & phagocytosis Describe the gross & microscopic features of acute inflammation Mention the role of chemical mediators in inflammation Enumerate the types of chemical mediator, their source and mode of action
		Pattern of Inflammation, Outcome of inflammation, Types of cells Granulomatous inflammation	<ul style="list-style-type: none"> Enumerate the patterns of inflammation, & describe each type, mention their gross & microscopic

		2 lectures	<p>features & clinical significance</p> <ul style="list-style-type: none"> • Define abscess, ulcer, pus, exudates & transudate • Discuss the outcome of acute inflammation <p>Enumerate inflammatory cells both in acute & chronic inflammation, describe each cell, & mention their role in Inflammatory processes</p> <p>Define chronic inflammation, discuss its forms, pathogenesis & outcome</p> <p>Define granulomatous inflammation</p> <p>Enumerate the causes of granulomatous reactions</p> <p>Describe the microscopic features of granulomas</p> <p>Discuss the local effects of inflammation, both beneficial & harmful effects</p>
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		<p>Systemic Effect of Inflammation</p> <p>Healing and repair</p> <p>Growth factors</p> <p>Extracellular Matrix</p> <p>Stem</p> <p>2 lectures</p>	<ul style="list-style-type: none"> • Discuss the systemic effects inflammation & it's pathogenesis. • Define tissue healing & repair • Discuss the types of somatic cells, and stem, cells • Discuss the role of growth factors in healing process. • Discuss the role of extracellular matrix in healing process • Discuss Cell cycles , define stem cell , types of cells (stable , labile , permanent cells) • Types of extracellular matrix • Collagen , elastin, glycoprotein , fibronectin , laminin <ul style="list-style-type: none"> • Function and source of growth factors • Discussion the clinical aspects of inflammation. • Clinical cases with specific scenarios concerning with the topics and subtopics of inflammation , mediators , growth factors , pattern of inflammation , and all others that already given to the students
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			throughout the course
		Primary and Secondary Union 2 lectures	<ul style="list-style-type: none"> • Describe the primary union & secondary union in healing of skin wounds. Enumerate causes of delay of healing process • Define keloid, proud flesh scar.
		Hemodynamics 8 lectures Edema, congestion and Hyperemia 3 lectures	Hemodynamic Disorders: (Chapter 3 / 8 lectures) <ul style="list-style-type: none"> • Define edema, enumerate the causes, and discuss it's pathophysiology • Describe the morphological features of localized & generalized edema • Hyperemia, discuss it's causes & it's clinical significance • Define congestion, discuss the causes, pathophysiology & it's clinical, gross & Microscopy • Describe liver congestion (nut-eg liver), &

			<p>pulmonary congestion</p> <ul style="list-style-type: none"> Describe hyperemia, Active and Passive
		<p>Haemorrhage Embolism and Infarction</p> <p>3 lectures</p>	<ul style="list-style-type: none"> Hemorrhage, types of hemorrhage, Internal and external types, Define Hematoma, describe gross and microscopical changes Define embolism Enumerate it's types: thromboembolism , fat, air amniotic fluid, bone marrow and air embolism. Discuss the pathogenesis, it's gross, microscopic & clinical features Define infarction Describe the gross & histological features Causes of white & red infarctions. Discuss the factors that influence the

			formation of an infarct
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It is The Hashemite University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University through its Special Need section will exert all efforts to accommodate for individual's needs.

Special Needs Section: Student Services and Care Unit

Tel: 053903333 ext. 4132/ 4583/ 5023

Location: Deanship of Students Affairs

Email: stydent@hu.edu.jo

COURSE REGULATIONS

If a student is absent for a teaching session then they must discuss this with the course instructor. If a student is absent for more than 25% of the course then he may be liable to fail the course

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

If a student misses an examination then they will have the opportunity for a make-up examination, according to the university regulations

C- Health and safety procedures: College Members and students must at all times, conform to Health and Safety rules and procedures

:D- Honesty policy regarding cheating, plagiarism, misbehavior

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom. Students violate this policy would be subjected to disciplinary action according to the Hashemite University disciplinary policies

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus

Assessment	Grade Weighting	Deadline Assessment
e.g. Exam 1	50%	Add date/time
e.g. Quizzes	ungraded	
Homework assignment	ungraded	
e.g. Final Exam (3)	50%	Add date/time

Description of Exams

Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of multiple choice questions.

All the best is done to include and cover ALL the material given in syllabus by examination all throughout the semester.

Homework and assignment: Will be given for each chapter, while the chapter in progress you are supposed to work on them continuously and submit in next lecture when I finish the chapter. You are also expected to work on in-chapter examples, self-tests and representative number of end of chapter problems.

Quizzes: Unannounced quizzes will be given during or/and at the end of each chapter based upon the previous lectures. It will enforce that you come prepared to the class.

Weekly quizzes is given to the students to practice their knowledge and new learnt concepts by giving those questions in Team and educational channel in Instagram

On live session is given to the student by appointing fixed date and time to discuss clinical cases which is correlate with the pathological concepts that we discussing in each chapter, to motivate the medical students to think critical and trigger their ability to analyses the clinical problems according to the scenario given in each case(provoke their critical , abstract and analyzed thinking)

Course schedule:

Lecture #	Lecture title	Week	Day	Date	Lecturer
1.	Cell injury Overview of cell injury, adaptation hypertrophy	1	Sunday	6-10	Dr. Ghada
2.	Cell injury Adaptation Hyperplasia, Metaplasia, atrophy Clinical case study	1	Tuesday	8-10	Dr. Ghada
3.	Types of Injury And causes of injury	1	Thursday	10-10	Dr. Ghada
4.	Reversible injury morphology and discussion , irreversible cell injury	2	Sunday	13-10	Dr. Ghada
5.	Pattern of necrosis, Clinical scenarios	2	Tuesday	15-10	Dr. Ghada
6.	Mechanism of cell injury, subcellular changes in cell injury	2	Thursday	17-10	Dr. Ghada
7.	Apoptosis Full discussion with clinical scenarios	3	Sunday	20-10	Dr. Ghada
8.	Subcellular accumulation of substances and aging	3	Tuesday	22-10	Dr. Ghada
9.	Case study and application of cell injury	3	Thursday	24-10	Dr. Ghada
10.	Definition of acute inflammation , types of inflammation and cardinal signs with clinical settings	4	Sunday	27-10	Dr. Ghada
11.	Vascular response of inflammation	4	Tuesday	29-10	Dr. Ghada
12.	Cellular response of inflammation	4	Thursday	31-10	Dr. Ghada
13.	Chemical mediators of acute inflammation , arachidonic acid metabolites	5	Sunday	3-11	Dr. Ghada
14.	Pattern of inflammation Systemic manifestation of acute inflammation	5	Tuesday	5-11	Dr. Ghada

15.	Discussion of chronic inflammation and chemical mediators included , cell cycle , stem cells , types,	5	Thursday	7-11	Dr. Ghada
16.	Chronic granulomatous inflammation, growth factors , mechanism of healing	6	Sunday	10-11	Dr. Ghada
17.	Healing and repair part 1	6	Tuesday	12-11	Dr. Ghada
18.	Healing and repair (primary and secondary intention) part 2	6	Thursday	14-11	Dr. Ghada
19.	Overview of hemostasis in hemodynamic disturbances, role of platelet in primary hemostatic plug	7	Sunday	17-11	Dr. Ghada
20.	Congestion and odema	7	Tuesday	19-11	Dr. Ghada
21.	Mechanism and types of edema Full discussion with clinical scenarios		Thursday	21-11	Dr. Ghada
22.	Hemorrhage (types and causes	7	Sunday	24-11	Dr. Ghada
23.	Thrombosis Virchow triad Causes of thrombosis , types , clinical scenario and case study discussion	8	Tuesday	26-11	Dr .Ghada
24.	DIC , embolism , types of embolism, infarction	8	Thursday	28-11	Dr. Ghada
25.	Types of infarction, shock, mechanism, types and stages	8	Sunday	1-12	Dr. Ghada
26.	Clinical Application of hemodynamics with clinical cases and scenarios	9	Tuesday	3-12	Dr. Ghada
27.	Practical application of hemodynamics	9	Thursday	5-12	Dr. Ghada
28.	Introduction to neoplasia Introduction to neoplasms (benign and malignant tumors)	9	Sunday	8-12	Dr. Ola
29.	Epidemiology of cancer and carcinogenic agents	10	Tuesday	10-12	Dr. Ola
30.	Microbial carcinogens and genetic lesions in tumors	10	Thursday	12-12	Dr. Ola
31.	Carcinogenesis and hallmarks of cancer I	10	Sunday	15-12	Dr. Ola
32.	Details about the eight hallmarks of cancer and discuss the mode of action of	11	Tuesday	17-12	Dr. Ola

	different oncogenes and tumor suppressor genes. 3. Discuss genomic instability as an enabler of malignancy.				
33.	Carcinogenesis and hallmarks of cancer II	11	Thursday	19-12	Dr. Ola
34.	Clinical aspects of neoplasia	11	Sunday	22-12	Dr. Ola
35.	Practical and pathologic features of neoplasms	12	Tuesday	24-12	Dr. Ola
36.	Revision cell injury pre final	12	Thursday	26-12	Dr. Ghada
37.	Revision of inflammation	12	Sunday	29-12	Dr. Ghada
38.	Revision of hemodynamics	13	Tuesday	31-12	Dr. Ghada
39.	Discussion cases General -1	13	Thursday	2-1	Dr. Ghada
40.	Discussion General pathology aspects lecture 2	14	Sunday	5-1	Dr. Ghada

Note: weeks 8-9 are exam periods