

The Hashemite University



Deanship of Academic
Development
and International Outreach

عمادة التطوير الأكاديمي والتواصل
الدولي

**Syllabus: Course Title General Pathology and Code 11150202
2024/ 2023 First Semester**

COURSE INFORMATION	
Course Name: General pathology Semester: First Department: Department of basic medical sciences Faculty: Faculty of medicine	Course Code: 111501202 Section: Second year medical students Core Curriculum: 3 Credits (2.5 Hours theory & 0.5 hour practical /week)
Day(s) and Time(s): Sunday: 9:30-1:30 Tuesday :9:30-1:30 Thursday : 9:30-1:30 Classroom: الطب البشري العلوم المساندة	16 WEEKS/1 st . SEMESTER /YEAR 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, Third floor, Department of Basic Medical
COURSE DESCRIPTION	
Pathology is a branch of Medicine that deals with the scientific study of the causes, pathogenesis (mechanisms), structural & functional changes of human organs and tissues in various diseases. Therefore, it is one of the main foundations of medicine & it serves to bridge basic medical disciplines with clinical sciences.	

Pathology as a whole is divided into two parts:

A-General Pathology.

B- Systemic Pathology

General Pathology: is going to be covered in this course. It deals with diseases processes in general & there will be a description of the molecular, ultrastructural, the cellular & the tissue reactions to different injurious agents.

Pathology is the study of the **causes** and effects of **disease** or **injury**. The word *pathology* also refers to the study of disease in general, incorporating a wide range of **biology** research fields and medical practices so when used in the context of modern medical treatment, the term is often used in a more narrow fashion to refer to processes and tests which fall within the contemporary medical field of "general pathology", an area which includes a number of distinct but inter-related **medical specialties** that diagnose disease, mostly through analysis of **tissue**, **cell**, and **body fluid** samples.

A pathology may also refer to the predicted or actual progression of particular diseases (as in the statement "the many different forms of **cancer** have diverse pathologies "in addition to genetic study related to cancer , outcome , survival and prognosis.

As a field, pathology addresses components of disease: cause, mechanisms of development (**pathogenesis**), structural alterations of cells (morphologic changes), and the consequences of changes (clinical manifestations).

In common medical practice, general pathology is mostly concerned with analyzing known clinical abnormalities that are markers or precursors for both **infectious** and **non-infectious** disease, and is conducted by experts in one of two major specialties, **anatomical pathology** and **clinical pathology**.

DELIVERY METHODS

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

- PowerPoint lectures and active classroom based discussion
- Collaborative learning through small groups acting in an interdisciplinary context.
- 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	
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) <i>Please send an e-mail (ghadah@hu.edu.jo) to meet at any other time.</i>

REFERENCES AND LEARNING RESOURCES

Required Textbook

Text books and material: 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 	<p>Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1- Define Pathology 2- To understand basic tissue reactions to different types of injuries. 3- To know the etiology i.e. causes of major diseases. 	<p>Cell Injury, Adaptation 6-8 lectures 2 lecture per week</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</p>	<p>Discuss & enumerate cellular adaptations and describe each type, hypertrophy, hyperplasia, atrophy, and metaplasia and</p>

<p>basic pathology and diseases.</p> <p>4. The student should be familiar with basic knowledge of general pathology</p> <p>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. 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:</p> <ul style="list-style-type: none"> 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>4- To understand why the diseases happen?</p> <p>5- To know the pathogenesis (mechanism) of disease process.</p> <p>6- To understand how the diseases happen?</p> <p>7- To describe the morphological features (the gross & microscopic & ultrastructural changes) produced by the disease.</p> <p>8- To describe the effects of the disease on the functions of organs.</p> <p>9- To know the outcome & the possible complications of the disease.</p> <p>10-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</p>	<p>Pattern of necrosis Intracellular accumulation and aging</p> <p>Inflammation Types, Cellular changes</p>	<p>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> <p>Discuss Pattern of necrosis including coagulative, liquefactive, caseating, gangrenous, fibrinoid and fat necrosis and their clinical significance</p> <p>Discuss and describe intracellular accumulation Definition of senescent cells and aging</p> <p>Acute and chronic inflammation. Healing & Tissue</p>
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	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	Vascular changes	<p>repair: (In chapters 2 total of 8 Lectures)</p> <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 features & clinical significance • Define abscess, ulcer, pus, exudates & transudate • Discuss the outcome of acute inflammation • Enumerate inflammatory cells both in acute & chronic

			<p>inflammation, describe each cell, & mention their role in</p> <ul style="list-style-type: none"> • Inflammatory processes • Define chronic inflammation, discuss its forms, pathogenesis & outcome • Define granulomatous inflammation Enumerate the causes of granulomatous reactions • Describe the microscopic features of granulomas • Discuss the local effects of inflammation, both beneficial & harmful effects
		<p>Systemic Effect of Inflammation Healing and repair Growth factors Extracellular Matrix Stem</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

			<ul style="list-style-type: none"> • Collagen , elastin, glycoprotein , fibronectin , laminin • 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 throughout the course.
		Primary and Secondary Union	<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 Edema, congestion and Hyperemia	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 <ul style="list-style-type: none"> Describe liver congestion (nut-eg liver), & pulmonary congestion Describe hyperemia, Active and Passive
		Haemorrhage Embolism and Infarction	<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
		Thrombosis and Shock Clinical aspects and scenario of clinical cases	<ul style="list-style-type: none"> Define thrombosis. Enumerate it's causes. What is Virchow's triad? Describe endocardial, arterial, venous & postmortem thrombi, discuss their causes,

			<p>gross & microscopic features Discuss the fate of thrombus</p> <ul style="list-style-type: none"> • Discuss causes, pathophysiology, gross & microscopic features & the clinical significance of DIC • Giving to the students various types and examples of clinical • Cases that correlated with each pathological changes described above • Describe and define Shock, discuss the pathophysiology of shock • types of shock • Cardiogenic, Hypovolemic, Anaphylactic, septic shock • Difference in between above types • Define Septic shock, pathological changes, Gross and microscopical changes • Stages of shock • Discussion the clinical aspects of hemodynamic derangements and disorders as thrombosis, infarction , bleeding and shock by giving different cases with diversities of clinical scenarios. Discuss theses cases with students and guide them to reach definite diagnosis focusing on keyword in every clinical cse assisting them to find
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			clue to reach diagnosis.
		Neoplasia -Neoplasm -Benign and malignant tumors -Dysplasia ,Grading of dysplasia -Biological features of Neoplasia and Carcinogens	Chapter 6 Neoplasia 6 lectures <ul style="list-style-type: none"> • Define neoplasm, discuss, benign & malignant tumors, nomenclature of tumors • Discuss the differences between benign & malignant cells, regarding microscopic features & biological behavior • Define hamartoma, teratoma, mixed tumors • Dysplasia, mild, moderate & severe dysplasia carcinoma in situ • Discuss the biological features of malignant tumors, the cell morphology, anaplasia, modes of spread
		Carcinogenesis and Paraneoplastic Syndrome	Discuss the epidemiology of cancer <ul style="list-style-type: none"> • Causes of cancer, chemical carcinogens, & biological carcinogens. Occupational & hereditary cancers • Discuss carcinogenesis, define oncogene, discuss the multistep theory of neoplasia, the pathogenesis of carcinogenesis

			<ul style="list-style-type: none"> • The chromosomal changes in cancer • Discuss the effect of cancer on host • Define paraneoplastic syndrome
		Grading and Staging of tumours TNM classification Investigations for diagnosis	<ul style="list-style-type: none"> • Define the grading of cancer • Define staging of cancer & mention the TNM, AJM, staging systems <p>Discuss the laboratory procedures used to diagnose cancer cases</p>
		Clinical aspects of neoplasia	<p>Talk in detail about the methods used in the diagnosis of tumors including the different morphological methods, tumor markers and molecular techniques</p> <p>And discuss clinical cases regarding different types of tumours</p>
	<p>The objectives of practical sessions is</p> <p>1-to be familiar with morphological patterns of diseases through looking at slides & photographs of ultra structural, histopathological sections & gross specimens those with various diseases.</p> <p>2-Four practical sessions were held in this module include power point slides of large number of pathological conditions and disease concerning with four main chapter that is given through the module in addition to various topics and subtopics that included in each chapter</p> <p>3-teaching the students how to interpret routine slides by</p>	Practical Sessions	<p>Cell Injury</p> <p>1-The students are informed about tissue processing & a visit to the pathology lab</p> <p>2-To have an idea about used instruments & be informed about how histological sections & cytology specimens were prepared</p> <p>3-A review of gross morphology, & histological sections of reversible and irreversible cell injuries were done including hydropic degeneration of necrosis & intracellular accumulaThe students were informed to identify the gross & Lab</p>

	<p>using routine stains as Heatmatoxylin and eosin in addition to ancillary or additional stains that help us to identify specific substances or structures in order to reach definite diagnosis or confirm or provisional diagnosis moreover using electron microscope ready pictures to be discussed and taught to the students in specific subtopics</p>		<p>INFLAMMATION & HEALING AND TISSUE REPAIR 1-Inflammation microscopic features of acute & chronic inflammation, 2-to identify the types of inflammatory cells and the patterns of inflammation 3-To identify abscess, ulcer & granulomas</p> <p>4-The gross & microscopic features of healing & repair are reviewed, including granulation tissue, fibrous tissue and keloid</p> <p>HEMODYNAMICS 1-The students are informed to identify the gross & microscopic appearances of edema, congestion, hemorrhages, hematomas, thrombosis, embolism & infarction</p> <p>NEOPLASIA 1- Differentiate between benign & malignant tumors. Describe a benign & a malignant tumor 2-Discuss grading & staging of cancer</p>
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CADEMIC SUPPORT

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:

Tel:
Location:
Email:

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	40%	Add date/time
e.g. Exam 2 (practical exam)	20%	Add date/time
e.g. Quizzes	ungraded	
Homework assignment	ungraded	
e.g. Final Exam (3)	40%	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)