

The Hashemite University



الجامعة الهاشمية



Deanship of Academic Development
and International Outreach

عمادة التطوير الأكاديمي

والتواصل الدولي

Syllabus

Gastrointestinal system – Code **111501302**

First Semester 2024/2025

COURSE INFORMATION	
Course Name: Gastrointestinal System Semester: 1 st Semester/ 2024-2025 Department: Department of Microbiology, Pathology, and Forensic Medicine Faculty: Faculty of Medicine	Course Code: 111501302 Section: Third Year Medical Students – 3 Sections (A, B, C) Core Curriculum: MD program
Day(s) and Time(s): Everyday Nov 17 - Dec 29 Classroom: Al-Hareth Hall 1 and 2, and online, and Al-Hareth Main Hall	Credit Hours: 6 hours Prerequisites: N/A
COURSE DESCRIPTION	
<p>The Gastrointestinal tract (GIT) System is an intensive, multidisciplinary six-credit-hour course, with 56 lectures included. This course aims to cover all the clinically relevant and significant aspects of the gastrointestinal system and provide the fundamental concepts in several GIT-related topics.</p> <p>Students will be introduced to the anatomy and histology of the GIT and the physiology of gastrointestinal motility, digestion, and metabolism. Moreover, the lecture sessions will discuss the fundamental basic science concepts of important pathologies of the GIT, including diseases of the hepatobiliary system and the pancreas and several relevant pharmacological treatments. Theoretical and practical sessions will be taught in an integrative approach.</p>	
DELIVERY METHODS	

- The course will be delivered through a combination of active learning strategies. These will include:
- PowerPoint lectures and active classroom-based discussion
- Practical laboratories
- Relevant films and documentaries
- E-learning resources: e-reading assignments and practice quizzes through Model and Microsoft Team

FACULTY INFORMATION		
Name	Dr. Dua Abuquteish	
Academic Title:	Assistant Professor	
Office Location:	1020	
Telephone Number:	5406	
Email Address:	dua@hu.edu.jo	
Office Hours:	Sunday	9.30-12:00
	Tuesday	9.30-12:30
	<i>Please send an e-mail (dua@hu.edu.jo) to meet at any other time.</i>	
REFERENCES AND LEARNING RESOURCES		
<ul style="list-style-type: none"> • Principles of Human Anatomy latest edition. • Clinical Anatomy for Medical Students, latest edition Atlas of Human Anatomy Basic Histology. latest edition Before we are born. latest edition • Textbook of Medical physiology. By Guyton & Hall, latest edition Harper's Biochemistry Harper's Biochemistry, latest edition Robbins Basic Pathology, latest edition (10th edition) • Medical Microbiology. An Introduction to Infectious Diseases. latest edition. Illustrated Reviews Pharmacology, latest edition • Supplementary Departmental Handouts 		

The GIT module lecturers:

Anatomy and histology	Dr. Mustafa Yousef	MustafaS@hu.edu.jo amany@hu.edu.jo
	Dr. Amany Swilam	
Pathology	Dr. Dua Abuquteish	dua@hu.edu.jo
Microbiology	Dr. Hala Tabl	halaa_mo@hu.edu.jo
Pharmacology	Dr. Arwa Al-Anber	arwaa@hu.edu.jo
Biochemistry	Dr. Nebras Melhem	nebras@hu.edu.jo
Physiology	Dr. Iman Aolymat	imank@hu.edu.jo
	Dr. Gehan Alwakeel	gehan@hu.edu.jo
Public health	Dr. Eman Al-Kamil	EmanA_Sa@hu.edu.jo

STUDENT LEARNING

Course Objectives	Course Student Learning Outcomes			Assessment Method
	Lecture number	Lecture title	Learning Outcomes	
<p>Upon successful completion of this course, the students should be able to:</p> <ol style="list-style-type: none"> 1. Describe the gross structure and functional anatomy of each GIT organ. 2. Recognize the microscopic appearance of different parts of the GIT and the normal embryology development with their congenital abnormalities. 3. Describe the function of each GIT structure. 4. Explain how neuronal mechanisms and GIT hormones regulate gastrointestinal, pancreatic, and biliary functions. 5. Describe the major types of nutrients. 6. Explain how proteins, carbohydrates, and fats are digested and absorbed. 7. Identify and describe the major disease processes including neoplasms and malabsorption conditions affecting different organs of GIT in terms of pathogenesis, gross and microscopic changes, manifestations, and complications. <p>Identify various bacterial, viral, fungal, and parasitic infections affecting GIT, and describe the principal manifestations, diagnosis, treatment, and prevention of each microorganism and parasitic agent affecting GIT. Describe the mechanisms of action, pharmacokinetics, indications, and adverse effects of commonly used drugs in treating GIT disorders (vomiting, peptic</p>	<p>PATHOLOGY 1</p>	<p>Oral and salivary gland Diseases</p>	<p>Describe the etiology, and pathogenesis of oral diseases Provide a brief account of infectious/inflammatory diseases of the salivary glands. List the most important salivary gland tumors and briefly describe their pathology.</p>	<p>Exams and Quizzes</p>
	<p>PATHOLOGY 2</p>	<p>Esophageal diseases, including GERD</p>	<p>Describe the main acquired anatomic disorders of the esophagus with emphasis on achalasia, lacerations, and hiatal hernia, in terms of etiology, pathogenesis, and pathologic features. Mention the cause, pathologic features, and clinical significance of esophageal varices. Describe the pathogenesis of reflux disease (GERD).</p>	

<p>ulcer disease, constipation, and diarrhea).</p> <p>Describe the essential nutritional requirement, body weight and energy balance, nutritional deficiencies, and disease processes associated with diet.</p> <p>Understand the clinical differences in the toxic effect of drugs on the liver and the management of some important drug-induced liver injury cases.</p> <p>Identify the Public health issues associated with the common gastrointestinal diseases and colon cancer epidemiology Correlate the basic biomedical knowledge to the clinical skills</p> <p><u>B-Critical thinking skills:</u></p> <p>1-Observe, identify, and predict health problems based on previous</p>				
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	<p>PATHOLOGY 3</p>	<p>Gastritis & peptic ulcer</p>	<p>Indicate the importance of Barrett's esophagus as an example of a pre-malignant lesion of the esophagus. Describe the main tumors of the esophagus (adenocarcinoma and squamous carcinoma)</p> <p>Describe gastritis (Helicobacter pylori-induced gastritis & drug-induced gastritis) in terms of pathogenesis, pathologic features, and complications. Describe peptic ulcer disease in terms of etiology, pathogenesis, types, and pathological features. Describe other types of gastric ulcerations</p>	
	<p>PATHOLOGY 4</p>	<p>Gastric Carcinomas and malignancies</p>	<p>Describe the two types of gastric adenocarcinoma Describe the Risk Factors, Gross & Microscopic Features, Spread & Prognosis of Gastric Adenocarcinoma. Identify the main types of gastric</p>	

<p>experience and make decisions based on evidence rather than opinion</p> <p>Draw conclusions about the collected data (inference).</p> <p>Maintain good communication habits, such as active listening and respect.</p> <p>Improve problem-solving skills.</p> <p>Demonstrate knowledge of resources and tools available to support lifelong learning</p>	PATHOLOGY 5,6,7	Disease of the small and large intestine, part 1,2,3	<p>lymphoma.</p> <p>4.Describe GIST and understand the underlying molecular alterations.</p> <p>Briefly, discuss the main developmental anomalies of the small intestine.</p> <p>Describe malabsorption in terms of causes, clinical significance, and complications.</p> <p>3.Understand the pathology of Celiac disease and its clinical significance.</p>	
	PATHOLOGY 8	Inflammatory Bowel disease	<p>Describe the Types, Etiology, and Pathologic, Endoscopic & Clinical Features of Chronic Inflammatory Bowel Disease (IBD). Identify the Differences between Crohn's disease & Ulcerative colitis Identify the main causes of bowel obstruction. Briefly discuss the diverticular diseases of the bowel.</p>	
	PATHOLOGY 9	Intestinal polyps and colorectal cancer	<p>Describe the Types & Pathological Features of Different Intestinal Polyps Describe the Adenoma-Carcinoma Sequence & The Two-Hit Hypothesis of Development of Colorectal Carcinoma Describe the Familial Forms of Colorectal Cancer (Lynch and FAP), Pathological Features, Spread, And Stages & Prognosis.</p>	

	<p>PATHOLOGY 10 & 11</p>	<p>Liver injury, cirrhosis, and hepatic failure part I and II</p>	<p>Describe the general morphologic and functional patterns of hepatic injury Understand the different liver diseases manifestation and terminology. List the main causes of hepatic failure and describe the pathogenesis, pathologic features, and complications of this disorder. Define cirrhosis and describe the pathologic features and complications of this condition</p>	
	<p>PATHOLOGY 12 and 13</p>	<p>Common liver diseases and hepatic tumors</p>	<p>Discuss the Pathogenesis & Pathologic Manifestations of Alcohol Liver Disease. Describe the other (non-Alcohol) and non-infectious causes of hepatitis, including Drug Induced Liver Diseases. Briefly describe the Pathological Effects of Metabolic & Inherited Liver Diseases (Hemochromatosis, Wilson disease, alpha-1-antitrypsine deficiency, and others) Cholestatic liver diseases Hepatic adenomas and liver tumors</p>	

PATHOLOGY 14

Gallbladder and pancreatic diseases

Discuss the disorders of the gallbladder with emphasis on cholelithiasis, cholecystitis and tumors.
Describe the pathology of the major tumors of the biliary tree.
Describe the causes, pathogenesis, and pathologic feature of different forms of pancreatitis.
List and describe the major tumor of exocrine pancreas.

Syllabus for Anatomy lectures in the Digestive System module

Anatomy 01	Anatomy of GIT (Mouth, tongue, teeth)	<p>Outline the parts & functions of GIT.</p> <p>Understand the general structure of digestive tract wall.</p> <p>Describe the anatomy of oral cavity (parts, structure, blood & lymph vessels, motor, and sensory supply).</p> <p>Briefly describe the teeth (types & structure).</p> <p>Describe the gross features & histology of tongue.</p> <p>Describe muscles & movements of tongue, blood & nerve supply, lymphatic drainage</p>
Anatomy 02	Anatomy and Histology of Salivary glands	<p>Outline the types & function of minor and major salivary glands.</p> <p>Describe location, shape, facial sheaths & gross features of major salivary glands (parotid, submandibular and sublingual glands).</p> <p>Understand the relations, blood & nerve supply, and lymph drainage of the major salivary glands.</p> <p>Describe the histology of the major salivary glands.</p>
Anatomy 03	Anatomy of palate, pharynx, and esophagus	<p>Describe the parts and structure of palate.</p> <p>Understand the muscles, movements, blood & nerve supply and lymph drainage of soft palate.</p> <p>Describe the extension, relations, and parts of pharynx.</p> <p>Describe muscles, blood & nerve supply, and lymph drainage of pharynx.</p> <p>Describe the extension, parts, relations, blood & nerve supply, and lymph drainage of esophagus.</p>
Anatomy 04	Anatomy of peritoneum	<p>Describe the parts and reflection of peritoneum.</p> <p>Describe the parts of peritoneal cavity (lesser & greater sacs).</p> <p>Describe the ligament and folds of the anterior abdominal wall.</p> <p>Describe the peritoneal omenta, folds, recesses, Gutter & pouches.</p> <p>Understand the blood & nerve supply, and lymph drainage of peritoneum.</p>

Anatomy 05	Anatomy of the Stomach	Describe the location, shape, opening, surfaces, parts, and relations of stomach. Understand the blood & nerve supply and Lymph drainage of stomach
Anatomy 06	Histology of Esophagus and Stomach	Describe the histology of esophagus Describe the general layout of the wall of the stomach. Identify the various cells of the gastric epithelium and understand their main features. Recognize the main histological differences between the regions of the stomach.
Anatomy 07	Anatomy of pancreas & duodenum	Describe the location, parts and relations, blood & nerve supply, and lymph drainage of pancreas. Describe the histology of pancreas. Describe the parts of small intestine. Understand the relation of the four parts of duodenum, blood & nerve supply, and lymph drainage of duodenum.
Anatomy 08	Anatomy of small & large intestine	Describe the parts of small intestine. Describe the gross features, blood & nerve supply, and lymph drainage of jejunum & ileum. Outline the parts of large intestine. Describe the location, relation, blood & nerve supply and the lymph drainage of the appendix & colon.
Anatomy 09	Anatomy of large intestine	Describe the location, relation, blood & nerve supply and the lymph drainage of colon, and rectum. Describe location, internal features, relations, sphincters, blood & nerve supply and lymph drainage and histology of anal canal. Outline the location and causes of the internal & external hemorrhoid and anal fissure.
Anatomy 10	Histology of small and large Intestine	Describe the general layout of the wall of the small intestine. Identify the various cells of the small intestinal epithelium and understand their main features. Recognize the main histological differences between the parts of the small intestine (duodenum, jejunum, and ileum).

		<p>Describe the general layout of the wall of the large intestine.</p> <p>Identify the various cells of the large intestinal epithelium and understand their main features.</p> <p>Recognize the main histological features of main parts of large intestine (colon, appendix, and anal canal)</p>
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Anatomy 11	Anatomy of the Liver, Gallbladder, and biliary tree	<p>Describe the location, surfaces, fissures, lobes, and peritoneal covering of the liver.</p> <p>Describe the relations, blood & nerve supply, and lymphatic drainage of the liver.</p> <p>Describe the parts, location, relations, blood & nerve supply, and lymph drainage of gallbladder.</p> <p>Describe the biliary tree and its relations.</p>
Anatomy 12	Histology of the Liver, Gallbladder, and biliary tree	<p>Describe the histology of the liver.</p> <p>Describe the histology of the gall bladder.</p> <p>Describe the histology of biliary tree.</p>
Anatomy 13	Embryology of GIT tract	<p>Describe the formation of gut tube.</p> <p>Outline the derivatives of foregut, midgut, and hindgut</p>

Subject	# of lecture	Lecture title	Lecture learning objectives
Physiology	1	GIT motility	<p>Recognize the general principles of gastrointestinal function.</p> <p>Describe the special features of the enteric nervous system.</p> <p>Identify the significance of gap junctions, interstitial cells of Cajal, and pacemaker cells in the functioning of GI smooth muscle.</p> <p>Explain the electrical basis of gastrointestinal contractions and the role of basic electrical activity (slow waves) in governing motility patterns.</p> <p>Describe how gastrointestinal motility changes during fasting.</p> <p>Identify the different types of propulsive and mixing motility in small and large intestine and the regulation of these movements.</p> <p>Explain the receptive relaxation and other gastrointestinal reflexes.</p>
Physiology	2	Swallowing, esophageal motility, and gastric vomiting	<p>Describe the mechanism of swallowing phases (oral, pharyngeal, and esophageal).</p> <p>Identify the stimulus and neural pathways that generate primary and secondary esophageal peristalsis.</p> <p>Understand the major functions of the esophagus and associated structures in terms of protection and propulsion.</p> <p>List the physiological events in gastric motility that occur in the gastric phase of digestion.</p> <p>Discuss the mechanism of vomiting and its significance as a protective response.</p>
Physiology	3	GIT secretions	<p>Describe the physiological role of various salivary glands.</p> <p>Describe the mechanisms involved in the regulation of salivary secretion.</p> <p>Describe the correlation between the composition and functions of salivary secretion.</p> <p>Describe the various types of gastric cells and the secretion of each cell type.</p> <p>Mention the components of gastric juice and the function of each component</p>

			<p>with especial attention on the role of hormones and other factors influencing gastric secretion.</p> <p>6. Describe the different mechanisms involved in the control of gastric secretion (mechanical, chemical, and neural).</p>
Physiology	4	Pancreatic secretions	<p>Recognize the functional anatomy of the pancreas.</p> <p>Describe the mechanism of pancreatic secretion from acinar cell.</p> <p>Indicate the composition and the role of pancreatic juice (ductal fluid and digestive enzymes) under different physiological states.</p> <p>Describe the activation of the pancreatic enzymes in the lumen of the small intestine.</p> <p>Illustrate the neuroendocrine regulation of exocrine pancreatic secretion.</p> <p>Understand the role of exocrine pancreatic secretion in intestinal digestion of nutrients.</p> <p>Describe the response of pancreatic secretion to a meal.</p>
Physiology	5	Biliary and intestinal secretions	<p>Describe the components of bile and intestinal secretions.</p> <p>Indicate the function of each component secreted in bile and intestinal juice in digestion.</p> <p>Recognize the mechanism that regulates bile synthesis and secretion.</p> <p>Illustrate the regulation mechanisms involved in the secretion of intestinal fluid (mechanical, hormonal, and neural).</p>
Physiology	6	Absorption in GIT	<p>Indicate the role of Brunner's glands in duodenum and of bile salts in fat digestion and absorption (mechanical, hormonal, and neural).</p> <p>Describe the enterohepatic circulation of bile acids.</p> <p>Explain the mechanisms of absorption of the principal inorganic components of diets.</p> <p>Discuss the molecular basis of membrane transport processes.</p>

			<p>Explain the factors that determine whether a molecule is absorbed into the blood or into lymph.</p> <p>Explain the mechanisms by which end products of digestion of proteins, carbohydrates, and fats are absorbed into and through the cells lining the alimentary canal.</p> <p>Define how the motility patterns of the colon subserve its function to desiccate (dehydrate) and evacuate the stool.</p>
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Subject	# of lecture	Lecture title	Lecture learning objectives
Pharmacology	1	Antiemetic drugs affecting gastric motility	<p>Describe the mechanism of drug-induced vomiting.</p> <p>List drug classes employed as antiemetic's & the mechanism of action each class.</p> <p>Understand nausea and vomiting treatment in pregnancy.</p> <p>Explain the clinical implications of drugs on gastric emptying.</p>
Pharmacology	2&3	Drugs used in GERD and peptic ulcer disease.	<p>Describe mechanism, uses and adverse effect drugs used in GERD.</p> <p>List major drugs associated with GI ulceration</p> <p>Describe the mechanism of action of drugs or groups of drugs commonly employed in the management of peptic ulcer disease.</p> <p>Explain the rationale behind the use of drug combination in peptic ulcer disease. List important antimicrobial drugs employed in peptic ulcer disease & explain the therapeutic basis of their inclusion in the management of peptic ulcer disease.</p> <p>Enumerate the adverse effects of drugs commonly used in peptic ulcer disease.</p> <p>Describe the pharmacotherapy options for prophylaxis of stress-related mucosal bleeding.</p>
Pharmacology	4	Laxatives	<p>Review the physiological aspects of normal bowel habits.</p> <p>List the major classes of drugs employed as laxatives & describe their mechanism of action.</p> <p>Acknowledge the indications and contraindications of laxatives</p> <p>Indicate the specific adverse effects associated with the commonly used laxative agents</p>

Pharmacology	5	Antidiarrheal drugs	Describe the therapeutic aims of antidiarrheal drugs. List the major classes of antidiarrheal drugs & describe their mechanism of action. Indicate the major adverse effects possibly encountered in patients using antidiarrheal drugs.
Pharmacology	6	Irritable bowel syndrome (IBS) and inflammatory bowel diseases (IBD)	Describe mechanism, uses and adverse effect drugs used in irritable bowel syndrome and inflammatory disease. Understand the non-pharmacological management for IBS and IBD patients.
Pharmacology	7	Treatment of hepatic encephalopathy and liver cirrhosis	Describe mechanism of drugs causing various types of hepatic diseases. Describe the therapeutic beneficial effects of some drugs used in treatment of hepatic encephalopathy and liver cirrhosis.

Subject	# of lecture	Lecture title	Lecture learning objectives
Microbiology	1	Gastritis & Helicobacter pylori	Describe morphology and cultural characters of Helicobacter pylori. Understand the virulence factors and pathogenesis of Helicobacter and its role in gastritis. Identify laboratory diagnosis & treatment options of Helicobacter infection.
Microbiology	2	Bacterial infections of GIT I	Enumerate important bacterial GIT infections. Describe morphology, culture, pathogenesis, Laboratory diagnosis and treatment options of Salmonella, Shigella, Diarrhegenic E.coli and Campylobacter.
Microbiology	3	Bacterial infections of GIT II	Describe morphology, culture & pathogenesis of Vibrio cholerae. Identify laboratory diagnosis & treatment options of Vibrio cholerae. Differentiate between different microbial causes of food poisoning. Recognize Laboratory diagnosis of food poisoning.
Microbiology	4	Viral causes of diarrhea	Enumerate Viral causes of diarrhea. Recognize the structure, pathogenesis, epidemiology, laboratory diagnosis & control of Rota viruses, Adenoviruses, 40 & 41 Norwalk, Coronaviruses & Enteroviruses
Microbiology	5	Viral Hepatitis	Enumerate types of hepatitis viruses. Understand the general characters pathogenesis, clinical presentation, laboratory diagnosis, prevention and treatment of HAV, HBV, HCV, HDV and HEV.
Microbiology	6	Parasitic diseases of GIT I	Enumerate important intestinal trematodes & cestodes and Identify their general characters. Describe the morphology, life cycle, pathogenesis, epidemiology, laboratory diagnosis & treatment of Schistosoma Mansoni, Fasciola, Taenia, Echinococcus granulosus and Hydatid disease.

Microbiology	7	Parasitic diseases of GIT II	Enumerate important intestinal nematodes and Identify their general characters. Describe the morphology, life cycle, pathogenesis, epidemiology, laboratory diagnosis & treatment of Ascaris lumbricoides, Ancylostoma duodenale, Strongyloides and Enterobius vermicularis.
Microbiology	8	Parasitic diseases of GIT III	Enumerate important protozoal infections of GIT. Describe the morphology, life cycle, pathogenesis, epidemiology, laboratory diagnosis & treatment of Entamoeba histolytica, Giardia lamblia, Balantidium coli and Cryptosporidium parvum.

Community Medicine	1&2	GIT public health issues	To better understand priority GIT disorders prevalence and burden. To discuss the public health interventions and the evidence-based practices to address these problems.
Biochemistry	1	Digestion and absorption of Carbohydrates	Identify the major monosaccharides, disaccharides, and polysaccharides found in the human body and diet. Explain why ingested disaccharides and polysaccharides must be broken down into monosaccharides and describe how this is accomplished. List the main digestive enzymes and describe their action on carbohydrate. Describe how glucose is transported across intestinal epithelial cells and into the bloodstream and describe the proteins involved. Describe the role of glucose transporters (GLUTs) in the transport of glucose into and out of cells, and tissue specific differences in the expression and regulation of GLUTs. Explain the biochemical basis for the symptoms seen in lactose intolerance & Congenital sucrase-isomaltase deficiency (CSID).

Biochemistry	2	Digestion and absorption of lipids	<p>List the constituents of dietary lipids</p> <p>Discuss the digestion of lipid in the stomach and small intestine.</p> <p>Explain the role of lipases in lipid digestion.</p> <p>Discuss the digestion of dietary cholesterol and phospholipid.</p> <p>Discuss the absorption of lipid by the intestinal mucosal cells.</p> <p>Discuss the resynthesize and secretion of lipid by the enterocytes.</p> <p>Discuss the secretion of chylomicron by the enterocytes</p> <p>List causes of steatorrhea.</p>
Biochemistry	3 & 4	<p>Digestion and absorption of proteins and liver function tests</p> <p>Vitamin and mineral absorption and digestion</p>	<p>Discuss the digestion of protein in the stomach and intestine.</p> <p>List and explain the function of the proteolytic enzymes.</p> <p>Describe the activation of pancreatic zymogens and the roles of the active enzymes in protein digestion.</p> <p>Describe the uptake of peptides and amino acids from the gastrointestinal tract. Note: in neonates the absorption of intact proteins.</p> <p>List laboratory tests used to assess liver function</p> <p>Describe the metabolism of bilirubin.</p> <p>Distinguish between direct and indirect measurements of bilirubin and its implications for distinguishing the cause of the jaundice</p> <p>Understand the role of Helicobacter in gastritis as well as laboratory diagnosis & sensitivity to antibiotics.</p>

ACADEMIC 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 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

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance.* It is a student's responsibility to monitor the frequency of their own absences. **Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.**

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviors that compromise his/her own integrity as well as that of the Hashemite University.

Plagiarism includes the following examples and it applies to all student assignments or submitted work:

Use of the work, ideas, images or words of someone else without his/her permission or reference to them.

Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.

Misrepresentation of the sources that were used.

The instructor has the right to fail the coursework or deduct marks where plagiarism is detected

Student Complaints Policy

Students at The Hashemite University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the students' handbook.

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
Exam 1	40%	TBD
Exam 2	20%	TBD
Final Exam	40%	TBD

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 a combination of multiple choice, short answer, match, true and false and/or descriptive questions. **Homework:** 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. The answers of self-tests and end of chapter exercises are given at the end of the book.

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.

No make-up exams, homework or quizzes will be given. Only documented absences will be considered as per HU guidelines.

Grades are not negotiable and are awarded to the MD program according to the following criteria*:

Letter Grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D		1.50
F	Fail	0.00
I	Incomplete	-

Topic	Lecturer	Lectures
Anatomy and histology	Dr. Mustafa Yousef	Lecture 6, and 10 -13
	Dr. Amany Swilam	Lectures 1-5, 7-9
Pathology	Dr. Dua Abuquteish	Lectures 1-14
Microbiology	Dr. Hala Tabl	Lectures 1-8
Pharmacology	Dr. Arwa Al-Anber	Lectures 1-7
Biochemistry	Dr. Nebras Melhem	Lectures 1-4
Physiology	Dr. Iman Aolymat	Lectures 1-6
	Dr. Gehan Alwakeel	
Public health	Dr. Eman Al-Kamil	Lectures 1-2
Clinical lectures	To be determined	Lectures 1-2

Summary of lectures: (total 56)

13 Anatomy lectures

7 Pharmacology lectures

8 Microbiology lectures

14 Pathology lectures

6 Physiology lectures

4 Biochemistry lectures

2 Community medicine

2 Clinical lecture

Summary of practical labs:

3 Anatomy Labs

2 Histology Labs

2 Microbiology Labs

2 Pathology Labs

1 Biochemistry Lab

Clinical Skills Lab

Week 1 (Nov 17 – Nov 21)							
	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Sunday Nov 17	A		Anatomy 1 (anatomy of mouth, tongue, teeth)	Physiology 1 (GIT motility)			
	B	Anatomy 1 (anatomy of mouth, tongue, teeth)	Physiology 1 (GIT motility)				
	C (online)			Anatomy 1 (anatomy of mouth, tongue, teeth)	Physiology 1 (GIT motility)		
Monday Nov 18	A		Anatomy 2 (anatomy and histology of Salivary glands)	Pathology 1 (Oral and salivary gland diseases)	Biochemistry 1 (Digestion and absorption of Carbohydrates)		
	B (online)	Pathology 1 (Oral and salivary gland diseases)	Biochemistry 1 (Digestion and absorption of Carbohydrates)	Anatomy 2 (anatomy and histology of Salivary glands)			
	C	Anatomy 2 (anatomy and histology of Salivary glands)	Pathology 1 (Oral and salivary gland diseases)	Biochemistry 1 (Digestion and absorption of Carbohydrates)	Lab (1) anatomy C1, C2	Lab (1) anatomy C3, C4	Lab (1) anatomy C5, C6
Tuesday Nov 19	A (online)	Anatomy 3 (palate, pharynx, and esophagus)	Pathology 2 (esophageal diseases, GERD)	Physiology 2 (Swallowing, esophageal motility, and gastric vomiting)	CS Group A	CS Group A	
	B	Physiology 2 (Swallowing, esophageal motility, and gastric vomiting)	Anatomy 3 (palate, pharynx, and esophagus)	Pathology 2 (esophageal diseases, GERD)	Lab (1) anatomy B1&B2	Lab (1) anatomy B3&B4	Lab (1) anatomy B5&B6
	C	Pathology 2 (esophageal diseases, GERD)	Physiology 2 (Swallowing, esophageal motility, and gastric vomiting)	Anatomy 3 (palate, pharynx, and esophagus)			
Wednesday Nov 20	A	Lab (1) anatomy A1&A2	Anatomy 4 (anatomy of peritoneum)	Pharmacology 1 (antiemetic drugs affecting gastric motility)	Microbiology 1 (Gastritis & Helicobacter pylori)	Lab (1) anatomy A3&A4	Lab (1) anatomy A5&A6
	B	Pharmacology 1 (antiemetic drugs affecting gastric motility)	Microbiology 1 (Gastritis & Helicobacter pylori)	Anatomy 4 (anatomy of peritoneum)			
	C (online)	Anatomy 4 (anatomy of peritoneum)	Pharmacology 1 (antiemetic drugs affecting gastric motility)	Microbiology 1 (Gastritis & Helicobacter pylori)			
Thursday Nov 21	A (online)		Pathology 3 (Gastritis & peptic ulcer)	Anatomy 5 (anatomy of the Stomach)	Physiology 3 (Gastric secretions)		
	B	Anatomy 5 (anatomy of the Stomach)	Physiology 3 (Gastric secretions)	Pathology 3 (Gastritis & peptic ulcer)	CS Group B	CS Group B	
	C	Physiology 3 (Gastric secretions)	Anatomy 5 (anatomy of the Stomach)	Lab (2) anatomy C3&C4	Pathology 3 (Gastritis & peptic ulcer)	Lab (2) anatomy C5&C6	Lab (2) anatomy C1&C2

Week 2 (Nov 24 – Nov 38)

	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Sunday Nov 24	A	Anatomy 6 (Histology of esophagus & Stomach)	Pathology 4 (Gastritis & peptic ulcer and gastric cancers)	Pharmacology 2 (Drugs used in GERD and peptic ulcer disease I)	Lab (2) Anatomy A3&A4	Lab (2) anatomy A5&A6	Lab (2) anatomy A1&A2
	B		Anatomy 6 (Histology of esophagus & Stomach)	Pathology 4 (Gastritis & peptic ulcer and gastric cancers)	Pharmacology 2 (Drugs used in GERD and peptic ulcer disease I)		
	C (online)	Pathology 4 (Gastritis & peptic ulcer and gastric cancers)	Pharmacology 2 (Drugs used in GERD and peptic ulcer disease I)	Anatomy 6 (Histology of esophagus & Stomach)			
Monday Nov 25	A	Biochemistry 2 (Digestion & Absorption of Lipids)	Microbiology 2 (Bacterial infections of GIT I)	Anatomy 7 (Anatomy of pancreas & duodenum)			
	B (online)	Anatomy 7 (Anatomy of pancreas & duodenum)	Biochemistry 2 (Digestion & Absorption of Lipids)	Microbiology 2 (Bacterial infections of GIT I)	Biochemistry lab Group B		
	C	Biochemistry lab Group C	Anatomy 7 (Anatomy of pancreas & duodenum)	Biochemistry 2 (Digestion & Absorption of Lipids)	Microbiology 2 (Bacterial infections of GIT I)		
Tuesday Nov 26	A (online)		Anatomy 8 (Anatomy of Small & large Intestine)	Pathology 5 (Diseases of the small & large intestine I)	Pharmacology 3 (Drugs used in GERD and peptic ulcer disease II)		
	B	Pathology 5 (Diseases of the small & large intestine I)	Pharmacology 3 (Drugs used in GERD and peptic ulcer disease II)	Anatomy 8 (Anatomy of Small & large Intestine)			
	C	Anatomy 8 (Anatomy of Small & large Intestine)	Pathology 5 (Diseases of the small & large intestine I)	Pharmacology 3 (Drugs used in GERD and peptic ulcer disease II)	CS Group C	CS Group C	
Wednesday Nov 27	A	Anatomy 9 (Anatomy of large Intestine)	Physiology 4 (Pancreatic secretions)	Microbiology 3 (Bacterial infections of GIT II)		Micro Lab I	
	B		Anatomy 9 (Anatomy of large Intestine)	Physiology 4 (Pancreatic secretions)	Microbiology 3 (Bacterial infections of GIT II)		Micro Lab I
	C (online)	Physiology 4 (Pancreatic secretions)	Microbiology 3 (Bacterial infections of GIT II)	Anatomy 9 (Anatomy of large Intestine)			
Thursday Nov 38	A (online)	Anatomy 10 (Histology of Small and Large Intestine)	Pathology 6 (Diseases of the small & large intestine II)	Pharmacology 4 (Laxative agents)	CS Group A	CS Group A	
	B	Pathology 6 (Diseases of the small & large intestine II)	Pharmacology 4 (Laxative agents)	Anatomy 10 (Histology of Small and Large Intestine)			
	C	Lab (3) anatomy C5&C6	Anatomy 10 (Histology of Small and Large Intestine)	Pathology 6 (Diseases of the small & large intestine II)	Pharmacology 4 (Laxative agents)	Lab (3) Anatomy C1&C2	Lab (3) Anatomy C3&C4

Week 3 (Dec 1 – Dec 5)

	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Sunday Dec 1	A	Pathology 7 (Diseases of the small & large intestine III)	Pharmacology 5 (Antidiarrheal drugs)	Microbiology 4 Viral causes of diarrhea			
	B (online)	Microbiology 4 Viral causes of diarrhea	Pathology 7 (Diseases of the small & large intestine III)	Pharmacology 5 (Antidiarrheal drugs)	Lab (2) Anatomy B5&B6	Lab (2) Anatomy B1&B2	Lab (2) Anatomy B3&B4
	C		Microbiology 4 Viral causes of diarrhea	Pathology 7 (Diseases of the small & large intestine III)	Pharmacology 5 (Antidiarrheal drugs)	Micro Lab I	
Monday Dec 2	A	Biochemistry lab Group A	Anatomy 11 (Liver, GB, and biliary tree)	Biochemistry 3 (Absorption of proteins & LFT)	Pathology 8 (small and large intestine VI; IBD)	Lab (3) Anatomy A1,A2&A3	Lab (3) Anatomy A4,A5&A6
	B	Anatomy 11 Liver, GB, and biliary tree	Biochemistry 3 (Absorption of proteins & LFT)	Pathology 8 (small and large intestine VI; IBD)	Lab (3) Anatomy B3&B4	Lab (3) Anatomy B5&B6	Lab (3) Anatomy B1&B2
	C (online)	Biochemistry 3 (Absorption of proteins & LFT)	Pathology 8 (small and large intestine VI; IBD)	Anatomy 11 Liver, GB, and biliary tree			
Tuesday Dec 3	A	Pathology 9 (Colonic polyps, cancer, & familial syndromes)	Pharmacology 6 (IBS and inflammatory bowel disease)	Anatomy 12 Histology of the Liver, GB, and biliary tree			
	B (online)	Pharmacology 6 (IBS and inflammatory bowel disease)	Anatomy 12 Histology of the Liver, GB, and biliary tree	Pathology 9 (Colonic polyps, cancer, & familial syndromes)			
	C		Pathology 9 (Colonic polyps, cancer, & familial syndromes)	Pharmacology 6 (IBS and inflammatory bowel disease)	Anatomy 12 Histology of the Liver, GB, and biliary tree		
Wednesday Dec 4	A (online)	Pathology 10 (Liver injury, cirrhosis, & hepatic failure I)	Physiology 5 (Biliary and intestinal secretions)	Microbiology 5 Viral Hepatitis			
	B		Pathology 10 (Liver injury, cirrhosis, & hepatic failure I)	Physiology 5 (Biliary and intestinal secretions)	Microbiology 5 Viral Hepatitis		
	C		Microbiology 5 Viral Hepatitis	Pathology 10 (Liver injury, cirrhosis, & hepatic failure I)	Physiology 5 (Biliary and intestinal secretions)		
Thursday Dec 5	A	Anatomy 13 Embryology of GIT tract	Microbiology 6 (Parasitic infections of GIT I)	Community 1			
	B		Anatomy 13 Embryology of GIT tract	Microbiology 6 (Parasitic infections of GIT I)	Community 1		
	C (online)		Community 1	Anatomy 13 Embryology of GIT tract	Microbiology 6 (Parasitic infections of GIT I)		

Week 4 (Dec 8 – Dec 12)							
	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Sunday Dec 8	A	Microbiology 7 (Parasitic infections of GIT II)	Pharmacology 7 hepatic encephalopathy & liver cirrhosis	Physiology 6 (absorption in GIT)	CS group B	CS group B	
	B (online)	Physiology 6 (absorption in GIT)	Microbiology 7 (Parasitic infections of GIT II)	Pharmacology 7 hepatic encephalopathy & liver cirrhosis			
	C		Microbiology 7 (Parasitic infections of GIT II)	Pharmacology 7 hepatic encephalopathy & liver cirrhosis	Physiology 6 (absorption in GIT)		
Monday Dec 9	A	Pathology 11 (Liver injury, cirrhosis, & hepatic failure II)	Clinical lecture 1	Microbiology 8 (Parasitic infection III)			
	B	Microbiology 8 (Parasitic infection III)	Pathology 11 (Liver injury, cirrhosis, & hepatic failure II)	Clinical lecture 1	Pathology Lab 1		
	C (online)	Clinical lecture 1	Microbiology 8 (Parasitic infection III)	Pathology 11 (Liver injury, cirrhosis, & hepatic failure II)			
Tuesday Dec 10	A	Pathology 12 (Common Liver Diseases)	Clinical lecture 2	Pathology Lab 1			
	B (online)		Pathology 12 (Common Liver Diseases)		Clinical lecture 2		
	C	Pathology 12 (Common Liver Diseases)	Pathology Lab 1	Clinical lecture 2			
Wednesday Dec 11	A (online)	Biochemistry 4 (Vitamin and mineral absorption and digestion)	Community 2	Pathology 13 (Common Liver Diseases and tumors)			
	B		Pathology 13 (Common Liver Diseases and tumors)	Biochemistry 4 (Vitamin and mineral absorption and digestion)	Community 2	Pathology Lab 2	
	C	Pathology 13 (Common Liver Diseases and tumors)	Biochemistry 4 (Vitamin and mineral absorption and digestion)	Community 2	Pathology Lab 2		
Thursday Dec 12	A	Pathology 14 (GB & pancreatic diseases)	Pathology Lab 2	Revision Pathology			
	B	Revision Pathology	Pathology 14 (GB & pancreatic diseases)	Pathology Lab 2			

	C	Pathology 14 (GB & pancreatic diseases)	Revision Pathology				
Week 6 (Dec 22 – Dec 26)	(online)						
	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Week 7 (Dec 29)							
Sunday	A						
Dec 22	Group	9:00 – 9:50	10:00 – 10:50	11:00 – 11:50	12:30 – 1:20	1:30 – 2:20	2:30 – 3:30
Sunday Dec 29	A (online)	Mid-Exam and Practical Exam					
	B (online)						
Monday Dec 23	A						
	B						
	C (online)						
Tuesday Dec 24	A						
	B (online)						
	C						
Wednesday Dec 25	A (online)						
	B						
	C						
Thursday Dec 26	A						
	B						
	C (online)						