



The University of Jordan
Accreditation & Quality Assurance Center

Course Syllabus

Course Name:

Digestive
System

1	Course title	Digestive System
2	Course number	0500251
3	Credit hours (theory)	6
	Contact hours (theory, practical)	
4	Prerequisites/corequisites	
5	Program title	Medical doctors
6	Program code	MD
7	Awarding institution	University of Jordan
8	Faculty	Faculty of Medicine
9	Department	Anatomy, Physiology, Biochemistry, Pathology, Pharmacology
10	Level of course	Bachelor
11	Year of study and semester (s)	Second year, Spring semester
12	Final Qualification	MD degree
13	Other department (s) involved in teaching the course	Clinical Departments
14	Language of Instruction	English
15	Date of production/revision	2020/2021

16. Course Coordinator:

Dr. Mohamed Khatatbeh
 Faculty of Medicine, Room 114.
 Variable office hours according to timetable of the coordinator, please refer to the coordinator.
 Ext 23477
malessa@ju.edu.jo

17. Other instructors:

Prof. Dr. M. H. Muhtasib
Prof. Dr. H. Elian
Prof. Dr. M. Qudah
Dr. M. S. Muhtasib
Dr. M. Shomaf
Dr. M. Rasheed
Dr. H. Abu El-Ragheb
Dr. F. Khdair
Dr. M. Khatatbeh
 Faculty of Medicine, Room 114.
 Variable office hours according to timetable of the staff member, please refer to the instructor.
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18. Course Description:**General description:**

This course focuses on Gastro Intestinal system to understand structures, biochemical aspects, physiological functions, pathological disorders, microbial, parasitic and viral infections and pharmacological requirements for treatment of gastro-intestinal diseases. In addition, Clinical aspects of gastrointestinal diseases will be introduced to students.

Detailed description:**(1) Anatomy, Histology & Embryology 30 hrs + 12practicals****Anatomy:**

- Anterior abdominal wall
- Rectus sheath – inguinal canal – spermatic cord
- Peritoneum
- Abdominal viscera (stomach, small intestine, large intestine, liver gall bladder, pancreas)
- Posterior abdominal wall
 - vesseles of posterior abdominal wall
 - nerves of posterior abdominal wall

Histology :

- the lip, teeth, sublingual , submandibular & parotid glands
- Dental Histology, vallate and filiform papilla of the tongue
- oesophagus, stomach, duodenum, jejunum, ileum & colon
- Pancreas- liver and galbladder

Embrvology:

- The foregut – development of the esophagus, stomach, duodenum
development of the liver, gallbladder and biliary apparatus
development of the spleen
- The midgut – rotation of the midgut loop – fixation of the intestin
- The cecum and appendix
- The Hindgut – the cloaca – the anal canal

(2) Physiology 8hrs +2practicals

- Introduction of GI Physiology

Physiology of smooth muscle
Neural hormonal control of GI
Blood flow and GI activities

GI motility:

Mastication and swallowing
Gastric motor activities and control
Small intestinal movements and control
Defecation and control

GI secretions:

Introduction to secretions

Salivary secretion, Mechanisms of secretion, Function, Control

Gastric secretion, Mechanisms, Function, Control

Intestinal secretions

Pancreatic secretion, Mechanisms, Function, Regulation

Liver and Galbladder: Bile secretion, Function, Control

Digestion and Absorption:

Intestinal specialization

Digestion and Absorption of Carbohydrates
 Digestion and Absorption of Proteins
 Digestion and Absorption of Lipids
 Absorption of water, electrolytes, Ca⁺⁺, Fe⁺⁺
 Absorption of Vitamins

Body Energetics, Dietary balance and Regulation of food intake

(3) Pathology 13hrs + 2practicals

ESOPHAGUS

Hiatal hernia
 Achalasia
 Lacerations
 Other anatomic & motor disorders
 Varices

Esophagitis

Types, mechanisms & appearances

Barrett's Esophagus

Carcinoma

Types, epidemiology, clinical
 Morphology

Stomach

Acute Gastritis

Chronic Gastritis

Types (superficial atrophic, granulomatous...etc)
 Gastric atrophy
 Mechanisms, pathogenesis, morphology

Peptic Ulcer

Pathogenesis, epidemiology
 Morphology, complications
 Clinical

Tumours

Polyps, other benign
 Malignant tumours
 Carcinoma, types, morphology, clinical, outcome & risk factors
 Lymphoma
 Carcinoid
 Other

LOWER GI TRACT DISEASES

Congenital Anomalies

Meckels
 A tresia and stenosis
 Imperforate anus
 Hirschsprung disease
 Ischemic Bowel disease
 Angiodysplasia
 Hemorrhoids
 Diarrheal diseases

Infection enterocolitis

Idiopathic inflammatory bowel disease

Crhon's Disease
 Ulcerative colitis

Diverticulosis

- Tumors

Benign (polyps)

Malignant

LIVER PATHOLOGY

Definitions

Cirrhosis
 Hepatic encephalopathy
 Jaundice
 Cholestasis

Hepatitis

Viral
 Autoimmune

Liver abscess

Drug induced liver disease
 Alcoholic liver disease

Hemochromatosis
 Antitrypsin deficiency

Rye's syndrome

Biliary cirrhosis
 Cholangitis
 Congenital anomalies of the biliary tree
 Vascular disorders of the liver
 Liver transplantation
 Tumors of the liver

GALLBLADDER DISEASE

Gall stones
 Cholecystitis
 Tumors and associated disease
 Injury iatrogenic
 Extrahepatic bile duct disorders
 Choledocholithiasis
 Ascending cholangitis
 Choledochal cyst

PANCREAS

Congenital anomalies
 Cystic fibrosis
 Pancreatitis
 tumors

(4) Microbiology 14 hrs**Natural defense of the gastrointestinal tract**

Normal flora
 Immune responses

Viral infections of the intestinal Tract

Rotavirus
 Adenoviruses
 Calciviruses
 Astroviruses
 Enteroviruses

Bacterial infections of the gastrointestinal tract:

Campylobacter
 Vibriospecies
 Diarrhia agent
 Salmonella
 Plesiomonas
 Food poisoning agent
 Shigella
 Yersinia

E. coli

Helicobacter

Clostridium perfringer

cereus

Clostridium difficile

botulinum

Parasitic infections of the Gastrointestinal Tract

Protozoa:

Giardia lamblia

Cryptosporidium parvum

Entameba histolytica

Helminths:

Enterobius vermicularis

Trichuris trichiura

Ascaris lumbricoides

Hook worms

Strongyloides stercoralis

Tapeworms

Trematodes

Bacterial Infection of the liver

Leptospira spp

Coxiella burnettii

Brucella spp

Mycobacterium

Viral Infections of the liver

EBV, CMV, YF and others

Hepatitis A virus

Hepatitis E virus

Hepatitis B virus

Hepatitis D virus

Hepatitis E virus

Epidemiology

Pathogenesis

Clinical features

Diagnosis

Prevention and control

Parasitic Infections of the liver

Schistosomes

Hydatid disease

Fasciola hepatica

(5) Pharmacology 6 hrs

Drugs in peptic ulcer disease

Antidiarrheal, Laxatives, Antispasmodic drugs

Emetics, antiemetics

Drugs in G.I.T inflammatory conditions.

(6) Clinical aspect 2 hrs

SYMPTOMS AND SIGNS

Painful mouth

Dysphagia and Odynophagia

Regurgitation and Belching

Heartburn

Nausea and Vomiting

Abdominal pain

Dyspepsia
Anorexia and Weight loss
Flatulence
Abdominal distension-(bloating)
Altered bowel habits
Rectal bleeding-Tenesmus
Hiccups
Jaundice
Abdominal masses
Ascitis
Hernial orifices and Hernias

HISTORY TAKING AND EXAMINATION OF THE ABDOMEN AND G.I SYSTEM

Regions of the abdomen
General approach

Inspection: Hair, Skin, Umbilicus, Contour of the abdomen Peristalsis, Pulsation's, Veins, Movements, and Hernias

Palpation:
Light palpation, Deep Palpation, Palpation of the liver, Dipping technique, Palpation of the spleen, Palpation of the kidneys.

Percussion:
The distended abdomen, the liver the spleen, Assessing for Ascitis. (Shifting dullness and Fluid Thrill)

Auscultation:
Bowel sounds, Arterial bruits, Venous Hum, Friction sounds, and Succession splash

Examination of the Hernial orifices and external genitalia

Ano-rectal examination:
Inspection of the anal area
Digital rectal examination
Proctoscopic examination

19. Course aims and outcomes:

A- Aims: : By the end of the course the student is expected to:

1. Integrate all related aspects of Gastrointestinal system from basic sciences to clinical.
2. Gain appropriate knowledge and skills about normal and abnormal structures and functions of the gastrointestinal tract.
3. Gain knowledge about pathological conditions, infectious disease and treatment of gastrointestinal diseases.
4. Gain primary knowledge about symptoms and signs related to gastrointestinal disorders.

B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course students will be able to ...

1. Knowledge and Understanding: Student is expected to

- A1. Recognize different organs of the digestive system and describe abdominal wall.
- A2. Describe histological structures of gastrointestinal organs.
- A3. Describe development of organs of the Gastrointestinal system.
- A4. Mention the biochemical constituents of saliva, stomach juice, bile and pancreatic secretions and their functions.
- A5. Describe the functions of the different organs of the system.
- A6. Describe the process of digestion and absorption of food.
- A7. Describe pathologic disorders of the GI systems.
- A8. Differentiate between infectious disorders related to Gastro-intestinal system.
- A9. Mention drugs used in the treatment of GI diseases.
- A10. Discuss the Epidemiology of diseases of the GI system, their prevention and control.
- A11. Describe signs and symptoms related to gastrointestinal disorders.

B. Intellectual Analytical and Cognitive Skills: Student is expected to

- B1. Integrate basic science of Gastro-intestinal system (Anatomy, chemistry, physiology etc) with clinical sciences of gastrointestinal tract.
- B2. Apply basic knowledge in more complicated aspects to understand mechanisms of diseases.
- B3. Predict different signs and symptoms related to pathologic conditions.
- B4. Suggest in principle drugs required for treatment.
- B5. Predict effects of gastrointestinal disorders on general health.

C. Subject- Specific Skills: Students is expected to

- C1. Identify each organ of gastrointestinal tract.
- C2. Differentiate between histological structures of Gastro-intestinal organs.
- C3. Calculate metabolic rate and relate changes to health status.
- C4. Identify and differentiate between pathological disorders in given slides and pictures.
- C5. Identify pathogens of gastrointestinal infections.

D. Transferable Key Skills: Students is expected to

- D1. Implement information for taking history and in performing physical examination.
- D2. Utilize information technology in learning

20. Topic Outline and Schedule:

2.					
Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction To GI Physiology, GI Motility 1 Oral Cavity & Salivary Secretion, Rectus Sheath, GI Motility 2	1	Prof. Dr. M. H. Muhtasib. Dr. M. Khatatbeh	A1, A4, A5, D2	MCQ exams	1. Snell, R.: Clinical Anatomy, latest edition. 2. Guyton & Hall: Textbook of Medical physiology, 14 th edition
Histology of Tongue, Salivary Glands GI Secretions 1 and 2, Digestion and Absorption 1 Anatomy of Esophagus, Stomach & Intestines Inguinal Canal, Spermatic Cord Peritoneum Viral Infection Of G.I.T Clinical 1	2	Prof. Dr. M. H. Muhtasib. Dr. M. Khatatbeh Dr. M. S. Muhtasib. Dr. M. Rasheed	A1, A2, A4, A5, A8, A11, D2	MCQ exams	As above + 3. JAWETZ, Melnick & Adelberg: Medical Microbiology. latest edition, LANGE
Histology of Glands & Pancreas Digestion & Absorption 2 Metabolic rate and Regulation of food intake Viral Hepatitis Bacterial Infection 1 GIT Development 1	3	Dr. M. Khatatbeh Prof. Dr. M. H. Muhtasib. Dr. M. Rasheed Prof. Dr. A. Shihabi Dr. Fareed Khdair	A2, A3, A6, A8, D2	MCQ exams	As above
Anatomy of Large Intestine	4	Prof. Dr. M. H. Muhtasib.	A1, A3, A7, C1, C2, C3, D2	MCQ exams	As. Above + 4. Kumar,

Bacterial Infection 2 and 3 Anatomy Liver, Gall Bladder & Pancreas Pathology of Esophageal Diseases, Acute & Chronic Gastritis, Peptic Ulcer & Gastric Carcinoma GIT Development-2		Dr. M. Shomaf Prof. Dr. A. Shihabi Dr. F. Khdair			Cotran, Robins: Basic Pathology latest edition, Saunders.
Parasitic Infections Of GIT-1, 2 and 3 Inflammatory Bowel Disease-1 and 2 Tumors Of Bowel MID EXAM	5	Dr. M. Shomaf Dr. Hassan Abu El-Ragheb	A7, A8, B1, B2, D2	MCQ exams	As above
Clinical 2 Vessels Of Posterior Abdominal Wall Nerves Of Posterior Abdominal Wall Autoimmune & Drug Induced Hepatitis Viral Hepatitis Drug In Peptic Ulcer Antidiarrheal, Laxative Drugs Metabolic Liver Disease	6	Prof. Dr. M. H. Muhtasib, Prof. Dr. H. Elian, Dr. M. Shomaf	A1, A7, A9, A11, B1, B2, D2	MCQ exams	As above + 5. Craig, CR. & Stitzel, RE: Modern Pharmacology with clinical applications latest edition

Anatomy of Rectum & Anal Canal Emetics And Antiemetics drugs Drugs In GIT Inflammatory Conditions, Liver Tumors, Pancreatitis & Pancreatic Tumors, Drugs For Ameba And Giardia, Anthelminitics, Gall Bladder Stones & Tumors	7	Prof. Dr. M. Qudah, Prof. Dr. H. Elian Dr. M. Rasheed, Dr. M. Shomaf	A1, A7, A9, B3, B4, B5, C4, C5, D1, D2	MCQ exams	As above
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21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- 1- Didactic lectures presented in power point slides will be provided for students.
- 2- Labs in Anatomy, Physiology, Pathology and Microbiology.
- 2- Assigned chapters from the reference books are expected to be read by students.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

- MCQ exams designed to achieve ILO's of the course.
- Midterm 30%, , Practical exam 20%, Student activities 10%, Final 40%

23. Course Policies:

A- Attendance policies: According to rules and regulation of the University, please refer to University of Jordan

Students Handbook (page 13 and 14) <http://registration.ju.edu.jo/Documents/daleel.pdf>

B- Absences from exams and handing in assignments on time: According to rules and regulation of the University, please refer to University of Jordan Students Handbook (page 16 and 17) <http://registration.ju.edu.jo/Documents/daleel.pdf>

C- Health and safety procedures: lab work related health and safety measures are given to students by the instructors in every lab session.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

According to rules and regulation of the University, please refer to University of Jordan Students Handbook (page 62-70) <http://registration.ju.edu.jo/RegRegulations/نظام%20تأديب%20الطبية.pdf>

E- Grading policy:

Rules are preset by the Faculty Council.

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

Main University Library, School of Medicine library, Medical Skills lab for illustration and simulation, School of Medicine Lab of Physiology.

24. Required equipment:

25. References:

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

1. Snell, R.: Clinical Anatomy, latest edition. Lippincott, Williams & Wilkins.
2. Guyton & Hall: Textbook of Medical physiology, 14th edition
Saunders,.
3. Kumar, Cotran, Robins: Basic Pathology latest edition, Saunders.
4. Craig, CR. & Stitzel, RE: Modern Pharmacology
with clinical applications latest edition
5. JAWETZ, Melnick & Adelberg: Medical Microbiology. latest edition, LANGE

B- Recommended books, materials, and media:

1. Physiology, by: Robert Berne & Matthew Levy, 7th. ed.
 2. Best and Taylors Physiological Basis of Medical Practice
by: John B. West, 12th. ed 1990.
 3. Human physiology, by: Lauralee Sherwood, last edition.
- Other books to be assigned by instructors

26. Additional information:

Nothing

Name of Course Coordinator: -----Signature: ----- Date: -----

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

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

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

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

Assurance

Copy to:
Head of Department
Assistant Dean for Quality

Course File