



مركز الاعتماد  
وإضمان الجودة  
ACCREDITATION & QUALITY ASSURANCE CENTER



The University of Jordan  
Accreditation & Quality Assurance Center

## Course Syllabus

Course Name:

Gastro Intestinal  
System

1	Course title	Gastro Intestinal System
2	Course number	0500251
3	Credit hours (theory)	6
	Contact hours (theory, practical)	89hours
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	2016

#### 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  
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#### 17. Other instructors:

*Prof. Dr. M. H. Muhtasib*  
*Prof. Dr. A. Shihabi*  
*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. Khdaire*  
*Dr. M. Khatatbeh*  
 Faculty of Medicine, Room 114.  
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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

**Embryology:**

- 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<sup>++</sup>, Fe<sup>++</sup>  
 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  
 Atresia 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  
 Caliciviruses  
 Astroviruses  
 Enteroviruses

**Bacterial infections of the gastrointestinal tract:**

Campylobacter  
 Vibriospecies  
 Diarrhia agent  
 Salmonella  
 Plesiomonas  
 Food poisoning agent  
 Shigella  
 Yersinia

E. coli

Helicobacter

Clostridium perfringens

cereus

Clostridium difficile

botulinum

**Parasitic infections of the Gastrointestinal Tract**

**Protozoa:**

Giardia lamblia

Cryptosporidium parvum

Entamoeba 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 aabdomen, 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:**

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
2. 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 <sup>th</sup> 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. Khedair			Cotran, Robins: Basic Pathology latest edition, Saunders.
Parasitic Infections Of GIT-1, 2 and 3 Inflammatory Bowel Disease-1 and 2 Tumors Of Bowel <b>MID EXAM</b>	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/الطلبه%20تأديب%20نظام.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, 14<sup>th</sup> 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
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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