Gastrointestinal tract

Block GIT- 211

Student Study Guide

Block GIT-211

2024-2025

Sohag University

Prepared by Departments of

Anatomy & Histology
Physiology & Biochemistry
Pathology & Pharmacology
Microbiology &Parasitology
Departments

Revised by

Medical Education Department

CONTENTS

Block specification

Basic Information:

Overview

Program on which the course is given Bachelor of Medicine and Surgery (M.B.B.Ch.).

Elements (Major or Minor) of the program: Undergraduate

Departments offering the course: Integrated Anatomy, Histology, Biochemistry , Physiology, Pharmacology, Pathology, Microbiology, and Parasitology Departments.

Academic year/level: 2nd year, 2nd semester.

Date of specification approval: 2024-2025.

Title: Gastrointestinal system

Code: GIT-211

Credit points: 10.5

Weeks: 7 weeks

Lecture: 64 hours

Practical: 42 hours

Student learning activities: 158 hrs.

52 hours {Case based group discussion & formative assessment}

Total: 316 hours

Gastrointestinal System Block Map

Block	Points	Weeks	Learning activities		
			Contact hours/points	Formative assessment/feedback	Assignment and other home self - learning activities (portfolio-based evidence)
Gastrointestinal tract- 211	10.5 points	7 weeks	158 hours/5.5 points	0.5 point	4. 5 points

Gastrointestinal system

Names and Contact Information of Staff Responsible for The Block:

Block coordinator

Dr. Nagwa Abd El-Sadek Ahmed
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Department coordinators

- **Dr. Abeer Fareed Abd El-Naeem, Human Anatomy Department**
- **Dr. Samira Mahmoud Mohamed, Histology Department**
- **Dr. Mary Atef Shokry , Medical Physiology Department**
- **Dr. Alia khairy Mahmoud, Medical Biochemistry Department**
- **Dr. Dina Hamada Mohamed, Microbiology and Immunology Department**
- **Dr. Amal Ahmed Abd El Mawgood, Parasitology Department**
- **Dr. Azza Mahmoud Ahmed Abouelella, Pharmacology Department**
- **Dr. Nagwa Abd El-Sadek Ahmed, Pathology Department**

Heads of Departments Sharing in The Block:

- **Anatomy Department: Prof/ Ahmed Talaat Galal.**
- **Histology Department: Prof/ Doha Saber Mohamed.**
- **Medical Biochemistry Department: Prof/ Nagwa Sayed Ahmed.**
- **Physiology Department: Prof/ Amany Abdelrahman Abdelhamid.**
- **Microbiology and Immunology Department: Prof/ Asmaa Nasr Eldin Thabet**
- **Parasitology Department: Prof. Dr. Hanaa Ahmed El-Hady.**
- **Pathology Department: Prof/ Afaf Taha Ibrahim El-Nashar.**
- **Pharmacology Department: Prof/ Sanaa Abd Elaal Omran.**

Professional information

I- Block Aims

Overall aim of the block:

The gastrointestinal system is the way into the body whereby both nutrients and toxic agents can get access to the body to execute its designed actions. While studying the gastrointestinal system, students are going to understand the developmental, structural, and functional aspects of the GIT. Also, students are going to study how the GIT is affected by various pathogens and toxins as well as the laboratory and pharmacological management of these disorders.

Intended Learning Outcomes of the GIT Block

1. Describe the normal developmental processes involving the GIT and its related congenital anomalies.
2. Know the structural and topographic organization of the gastrointestinal system and related accessory organs.
3. Identify and describe the pathogenesis, gross and microscopic changes, manifestations, and complications of the neoplastic conditions of the GIT
4. Describe microscopic structure and layers of the gastrointestinal system and the microscopic organization of the associated glands.
5. Identify specialized cellular and subcellular components of different GIT parts
6. Identify the functions of GIT, describe the secretory functions and motility characteristics of the GIT and associated glands and factors controlling and affecting motility and secretions.
7. Describe the blood supply, neural, and hormonal regulations of the GIT
8. Describe the major types of nutrients, their mechanisms of digestion, absorption, and related disorders
9. List liver functions, and explain its role in protein, lipoprotein, bile, and bilirubin synthesis, and xenobiotics metabolism.
10. Describe liver function tests and correlate it to different clinical conditions.
11. Identify and describe the pathogenesis, gross and microscopic changes, manifestations, and complications of the inflammatory and degenerative diseases affecting GIT.
12. State the common microorganisms and parasites causing GIT infections and recall their characteristic morphological features
13. Explain the epidemiology, clinical picture, pathogenesis, laboratory diagnosis, prevention and treatment of different GIT infections.
14. Interpret the clinical pictures and laboratory test results to identify microorganisms and parasites causing different GIT infections
15. Describe the mechanisms of action, pharmacokinetics, indications, and adverse effects of commonly used drugs in the treatment of GIT disorders including inflammatory, infectious, degenerative, neoplastic, motility and secretory disorders.
16. Integrate basic science of Gastro-intestinal system (Anatomy, chemistry, physiology etc) with clinical sciences of gastrointestinal system

NARS skills covered by GIT practical sessions:

Dissecting the different parts and organs of the human body.
Preparing urine and stool specimen for microscopic examination
Identifying different bacteria and fungi under the microscope
Differentiating different bacterial growth in culture
Performing basic biochemical blood tests

NARS areas covered by the block

The competency areas of the NARS- Medicine competency framework are 1- The graduate as a health care provider.

2- The graduate as a health promoter.

3- The graduate as a professional.

4- The graduate as a scholar and scientist.

5- The graduate as a member of the health team and a part of the health care system.

6- The graduate as a lifelong learner and researcher.

Sub competencies

1.1 Take and record a structured, patient centered history.
1.2 Adopt an empathic and holistic approach to the patients and their problems.
1.3 Assess the mental state of the patient.
1.4 Perform appropriately-timed full physical examination of patients, appropriate to the age,
gender, and clinical presentation of the patient while being culturally sensitive.
1.5 Prioritize issues to be addressed in a patient encounter.
1.6 Select the appropriate investigations and interpret their results taking into consideration cost/
effectiveness factors.
1.7 Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical
practice.
1.8 Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at
hand.
1.9 Retrieve, analyze, and evaluate relevant and current data from literature, using information
technologies and library resources, in order to help solve a clinical problem

**based on evidence
(EBM).
1.10 Integrate the results of history, physical examination and laboratory test findings into a
meaningful diagnostic formulation**

**2.1 Identify the basic determinants of health and principles of health improvement.
2.2 Recognize the economic, psychological, social, and cultural factors that interfere with
wellbeing.
2.3 Discuss the role of nutrition and physical activity in health.
2.4 Identify the major health risks in his/her community, including demographic, occupational
and environmental risks; endemic diseases, and prevalent chronic diseases.**

**3.1 Exhibit appropriate professional behaviors and relationships in all aspects of practice,
demonstrating honesty, integrity, commitment, compassion, and respect.
3.2 Adhere to the professional standards and laws governing the practice, and abide by the
national code of ethics issued by the Egyptian Medical Syndicate.
3.3 Respect the different cultural beliefs and values in the community they serve.
3.4 Treat all patients equally, and avoid stigmatizing any category regardless of their social,
cultural or ethnic backgrounds, or their disabilities.**

**4.1 Describe the normal structure of the body and its major organ systems and explain their
functions.
4.2 Explain the molecular, biochemical, and cellular mechanisms that are important in
maintaining the body's homeostasis.
4.3 Recognize and describe main developmental changes in humans and the effect of growth,
development and aging on the individual and his family.
4.4 Explain normal human behavior and apply theoretical frameworks of psychology to interpret
the varied responses of individuals, groups and societies to disease.**

5.1 Recognize the important role played by other health care professionals in patients'

management.
5.2 Respect colleagues and other health care professionals and work cooperatively with them,
negotiating overlapping and shared responsibilities and engaging in shared decision-making for
effective patient management.
5.3 Implement strategies to promote understanding, manage differences, and resolve conflicts in
a manner that supports collaborative work.
5.4 Apply leadership skills to enhance team functioning, the learning environment, and/or the
health care delivery system.

6.1 Regularly reflect on and assess his / her performance using various performance indicators
and information sources.
6.2 Develop, implement, monitor, and revise a personal learning plan to enhance professional
practice.
6.3 Identify opportunities and use various resources for learning.

Specific learning Objectives of the GIT Block

A- Knowledge and understanding:
A1.1- Describe the anatomy of the anterior abdominal wall (Superficial fascial layer, muscles, rectus sheath, innervations and blood supply). A1.2- Describe the normal anatomy of inguinal canal (Site, coverings and contents of the spermatic cord, boundaries of the inguinal canal). A1.3- Describe the surface landmarks of the superficial and deep inguinal rings, inguinal canal. A1.4-Describe the normal anatomy of the peritoneal cavity (Peritoneal ligaments, mesentery, omentum, greater and lesser sacs, epiploic foramen and peritoneal recesses). A2.1- Describe the normal development and the developmental defects of the oral cavity, lingual space, and salivary glands A2.2- Describe the normal development and the developmental defects of the esophagus, stomach, and abdominal viscera. A2.3- Describe the normal development and the developmental abnormalities of the small and large intestines, rectum, and anus. A2.4- Describe the normal development and the developmental defects of the pancreas, liver, and gallbladder. A3.1- Describe normal anatomy of oral cavit), salivary glands, & oropharynx. A3.2 -Describe the normal anatomy of the esophagus (divisions, narrowings, blood supply, venous drainage, lymphatic drainage and innervations) A3.3- Describe the normal anatomy of the stomach (gross anatomy, anatomical relations, blood supply, venous drainage, lymphatic drainage and innervations) A4.1- Recognize and identify the parts of the digestive system. A4.2- Discuss the normal structure of oral mucosa. A4.3- Describe the normal structure of tongue. A4.4- List the names of salivary glands A4.5- Identify and describe the normal structure of the four layers of the GIT wall (general plane). A4.6- Recognize the structure of esophagus A5.1- State the functions of the digestive system. A5.2- Know electrical activity of GIT. A5.3- Know nervous, hormonal and autonomus regulation of GIT secretion and motility. A5.4- Know different types of motilities of GIT. A5.5- Know different hormones secreted by the GIT. A6.1 Recognize the parts of the stomach (cardia, fundus and pylorus). A6.2 Discuss the normal structure of stomach fundus. A6.3 List the types of different cells lining the gastric glands A7.1- Know chewing reflex. A7.2- Name salivary glands and describe the composition, mechanism and control of salivary secretion A7.3. Know functions of saliva A7.4. Know different phases of swallowing

A8.1- Know functions of the stomach.
A8.2- Describe control of gastric secretions and motility.
A8.3- Describe different phases of gastric secretion.
A8.4- Describe control of gastric functions.
A8.5- Define vomiting and know its causes.
A9.1- Define inflammatory lesions of the oral cavity
A9.2- Outline tumors of the lips with brief description of squamous cell carcinoma.
A9.3- Enumerate ulcers, precancerous lesions and tumors of the tongue
A9.4- List causes of enlargement of the parotid gland
A9.5- Classify tumors of the salivary glands with brief description of mixed salivary gland tumor and mucoepidermoid carcinoma
A9.6- Define gastroesophageal reflux disease. Describe Barrett's esophagus and enumerate its effects.
A9.7- Classify tumors of the esophagus with emphasis on esophageal carcinoma
A10.1- Mention etiology of acute and chronic gastritis
A10.2- Define chronic gastritis and list the major causes with brief description of its pathological features and subtypes.
A10.3 -Define peptic ulceration and list sites, causes, pathogenesis and complications of peptic ulceration.
A10.4 -Classify tumors of the stomach.
A10.5- Describe gastric carcinoma, enumerate its risk factors, highlight the gross appearance, microscopic types and mention its prognosis.
A11.1- Explain the pathogenesis and clinical picture of peptic ulcer disease.
A11.2- Classify agents that is effective in treating peptic ulcer disease.
A11.3- Explain the mechanism of action, pharmacokinetics and therapeutic uses of drugs used to treat peptic ulcer disease.
A11.4- List the adverse effects of each drug group.
A11.5- Recall the pathogenesis of vomiting in general including the emetic actions of chemotherapeutic drugs.
A11.6- State the major categories of drugs used to control vomiting.
A12.1- Classify GIT infections
A12.2- Demonstrate the important features of the HSV1, mumps viruses and *Helicobacter pylori*.
A12.3- Explain the epidemiology, pathogenesis and clinical picture of each microorganism
A12.4- Recall the important laboratory diagnosis of each microorganism
A12.5- List the prevention of each microorganism
A13.1- Define the term food poisoning
A13.2- Memorize the common organisms causing food poisoning
A13.3- Recall the pathogenesis of food poisoning produced by B. cereus, Staph. aureus, C. botulinum and C. perfringens
A13.4- State the laboratory diagnosis of food poisoning
A14.1- Describe the normal anatomy of duodenum, jujenum, and ileum
A14.2- Describe the normal anatomy of various parts of large intestine
A15.1- Describe the normal anatomy of rectum & anal canal
A15. 2-Describe the normal anatomy of the spleen

A16.1 Recognize the parts of the small intestine (duodenum, jejunum, and ileum).
A16.2 Describe the normal structure of intestinal villi and Crypts of Lieberkühn
A16.3 List the types of different cells lining the villi and glands and their structure and functions
A17.1- Know types of intestinal motility and its control.
A17.2- Know the function of ileocecal valve.
A17.3- State the movement of the colon.
A17.4- Demonstrate the mechanism of defecation.
A18.1- Recall the classification of Antidiarrheals/Laxatives/Antispasmodics.
A18.2- State the basis of the mechanisms of actions of the previous drugs.
A18.3- State medications commonly used to treat IBD
A18.4- State medications commonly used to treat IBS
A19.1- List the most common syndromes associated with malabsorption with brief description of each syndrome
A19.2- Describe the formation, gross picture, complications and fate of typhoid ulcer in the small intestine.
A19.3- Define dysentery and enumerate its common types.
A19.4- Mention pathogenesis of amoebic and bacillary dysentery and describe their gross and microscopic features and list their complications
A19.5- Define inflammatory bowel disease and mention its causes and complications
A20.1- Discuss etiology, gross and microscopic features and complication of acute appendicitis
A20.2- Define acute intestinal obstruction and outline its types and effects.
A20.3- Enumerate causes of chronic intestinal obstruction
A20.4- Define megacolon and enumerate its effects.
A20.5 - Enumerate types of colonic polypi and syndromes associated with these polypi
A20.6- Classify tumors of the colon giving an account of colorectal carcinoma, emphasizing risk factors, pathological features and prognosis
A20.7- Enumerate causes of bleeding per rectum
A21.1- Describe the normal anatomy of the liver.
A21.2- Describe the important sites of porto-systemic anastomosis.
A21.3- Describe the normal anatomy of biliary system
A21.4- Describe the normal anatomy of the pancreas
A22.1 Identify the accessory or associated glands
A22.2 Describe the structure of liver
A22.3 Explain the Liver organization and Liver lobules
A22.4 Describe the normal structure of hepatocytes
A22.5 Exocrine pancreas structure
A22.5 Exocrine pancreas structure
A23.1 List the various enzymes participating in digestion processes of carbohydrates, proteins, lipids, and nucleic acid and mention their specific role.
A23.2 List the precursors of bile acids describe their synthesis and composition.
A23.3 Mention functions for each of bile components
A24.1 Outline the steps of heme catabolism (bilirubin formation).
A24.2 List the products of heme catabolism and their fate.

A24.3 Mention the biochemical differences between unconjugated and conjugated bilirubin.
A23.4 Define hyperbilirubinemia and jaundice.
A25.1- List the bacterial and viral causes of diarrhea and define their morphological characteristics
A25.2- State the mechanisms by which the organisms produce diarrhea
A25.3- Memorize the characteristic clinical features of diarrhea produced by each organism.
A25.4- Recall the important laboratory diagnosis and prevention of each organism
A26.1- List the bacterial and viral causes of diarrhea and define their morphological characteristics
A26.2- State the mechanisms by which the organisms produce diarrhea
A26.3- Memorize the characteristic clinical features of diarrhea produced by each organism.
A26.4- Recall the important laboratory diagnosis and prevention of each organism
A27.1- Describe the composition and functions of exocrine pancreas.
A27.1- Describe the cellular mechanism of pancreatic secretion.
A27.3- Describe control of pancreatic secretion.
A27.4- Describe the effect of loss of pancreatic enzymes.
A27.5- Know the functions of liver.
A27.6- Name the composition, mechanism of formation, functions & control of bile secretion.
A27.7- Know the functions of gall bladder.
A27.8- Describe control of gall bladder evacuation.
A279- Describe control of hepatic circulation.
A28.1- Name the composition and functions of intestinal secretion.
A28.2- Describe control of intestinal secretion.
A28.3- Name the constituents of large intestine secretion and their functions
A28.4- State the basic principles of GIT absorption.
A28.5- Explain absorption in small intestine.
A28.6- Describe route and control of intestinal absorption.
A28.7- Describe absorption in large intestine.
For the following medically important parasites inhabiting small intestine; *Heterophyes heterophyes*, *Hymenolepis nana*, *Taenia saginata* & *T. solium* and Ascaris *lumbricoides*:
A29.1- Recognize life cycle and the sources of parasitic infections.
A29.2- Define and differentiate the infective and diagnostic stages of each parasite.
A29.3 Describe clinical features and complications associated with these parasitic infections.
A29.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis.
A29.5- Define the principles of management for these parasitic diseases.
For the following medically important parasites inhabiting small intestine parasites; *Strongyloides stercoralis*, *Cryptosporidium parvum*, *Ancylostoma duodenale* &*Giardia lamblia*:
A30.1 - Recognize life cycle and the sources of parasitic infections.
A30.2-Define and differentiate the infective and diagnostic stages of selected parasites.
A30.3- Describe clinical features and complications associated with these parasitic infections.
A30.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis of parasitic infections.
A30.5- Define the principles of management for these parasitic diseases.

A31.1 Define the Xenobiotics & list their types
A31.2 Describe the different phases of metabolism of Xenobiotic
A31.3 Describe biochemical basis of alcohol metabolism
A32.1 Describe the pattern of liver function tests in the diagnosis of liver diseases.
A32.2 List biochemical markers of GIT diseases and their diagnostic
A33.1-List the various drugs causing different types of liver diseases
A33.2- State chemotherapy of viral hepatitis
A34.1- List the main viruses causing hepatitis and demonstrate their morphological features
A34.2- Recall the mosquito transmitted virus causing hepatitis
A34.3- Explain the mode of transmission, clinical, virologic course and complications of the viruses
A34.4- Demonstrate the laboratory diagnosis and how to analyze results
A34.5- List the prevention methods
A35.1- List the important causative microorganism causing typhoid fever and memorize their morphological characteristics
A35.2- Demonstrate the epidemiology, pathogenesis and clinical pictures of typhoid fever
A35.3- State the laboratory diagnosis of typhoid fever
A35.4- List the prevention typhoid fever
A35.5- State the chronic salmonella carriers
A35.6- Recall the definition and classification of peritonitis
A35.7- List the important causative microorganism causing peritonitis
A35.8- State the laboratory diagnosis of peritonitis
For the following medically important parasites inhabiting large intestine; *Entamoeba histolytica*, *Enterobius vermicularis*, *Trichiuris trichiura*:
A36.1- Recognize life cycle and the sources of parasitic infections.
A36.2- Define and differentiate the infective and diagnostic stages of selected parasites.
A36.3- Describe clinical features and complications associated with these parasitic infections.
A36.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis of parasitic infections.
A36.5- Describe *Schistosoma* life cycle, immune response, epidemiology, its pathogenesis and clinical manifestations.
A36.6- Define *Entamoeba histolytica* & *Schistosoma mansoni* as parasitic causes of dysentery.
A37.1- List the hepatobiliary parasites.
A37.2-Recognize life cycle and sources of parasitic infection of *Fasciola* spp.
A37.3- Define the epidemiology of Fascioliasis and Hydatid disease.
A37.4- Describe clinical features and hepatic complications of Fascioliasis and Schistosomiasis
A37.5- Describe extra-intestinal amoebiasis (Amoebic liver abscess).
A38.1- Memorize chemotherapy of Amebiasis
A38.2- Recall chemotherapy of Giardiasis
A38.3- State chemotherapy of Antihelmenthic drugs
A39.1- Define the term viral hepatitis and outline the main causes of acute viral hepatitis, mention its pathological features, course, fate and complications.

A39.2- Define the term chronic hepatitis, outline its types and pathology of each type.
A39.3- Discuss bilharzial hepatic fibrosis, mention its sequelea.
A39.4- Define portal hypertension and mention its complications.
A39.5- Define liver cirrhosis and list its classification, mention the etiology of each type and its pathological features
A39.6- Classify tumors of the liver and give a brief account on hepatocellular carcinoma with emphasizes on risk factors, gross and microscopic picture, spread and prognosis.
A39.7- Enumerate causes of liver enlargement.
A40.1- List causes and common types of gall stones. Briefly describe the complication
A40.2- Describe the pathology and complications of acute and chronic cholecystitis
A40.3- Describe the aetiology, pathology and sequelae of acute pancreatitis
A40.4- Outline the presenting features and pathology of carcinoma of exocrine pancreas
A40.5- Define ascites and enumerate its causes.

Intellectual skills
B1.1 - Interpret anatomical facts with its major clinical applications (abdominal incisions& hernias) B1.2 -Interpret anatomical facts with its major clinical applications (inguinal hernias). B1.3 - Interpret anatomical facts with its major clinical applications (ascites) B2.1- Interpret some clinical findings in relation to developmental basis (Esophageal atresia with tracheoesophageal fistula, pyloric stenosis Omphalocele, gastroschisis, Meckel's diverticulum, duodenal stenosis, annular pancreas, Hirschsprung disease, extrahepatic biliary atresia). B3.1- Interpret anatomical facts with its major clinical applications (Denervation following wisdom tooth extraction and parotid gland tumors. B3. 2- Interpret normal appearance of esophagus and stomach on X ray with contrast B3.3- Interpret anatomical facts with its major clinical applications (esophageal varices, and gastric ulcers) B4.1 Interpret histological facts with clinical applications (Oral thrush& esophageal stricture, reflux esophagitis) B5.1- Compare between myenteric and submucosal enteric plexuses of nervous. B5.2- Compare long and short reflexes that control GIT. B5.3- Explore functions of different hormones of GIT**.** B6.1 Compare different parts of the stomach and how can differentiate between them.B6.2 Compare between different types of cells and significance of each cell B6.3 Interpret histological facts with clinical applications (pernicious anemia, gastritis and gastric ulcer B7.1- Explore digestive functions of saliva. B7.2. Explore phases of salivary secretion. B7.3-Explore protective reflexes during swallowing. B7.4- Interpret on the digestive functions of the stomach. B7.5. Explore factors increase and decrease stomach secretion and motility. B7.6 Explore mechanism of vomiting and its side effects. B8.1- Interpret on the digestive functions of the stomach. B8.2. Explore factors increase and decrease stomach secretion and motility.

B8.3 Explore mechanism of vomiting and its side effects.
B9.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B9.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B9.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis
B10.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B10.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B10.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis
B11.1- Interpret the clinic.
B12.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing infections of the upper GIT and upper salivary glands.
B13.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing food poisoning
B14.1- Interpret the normal anatomical appearance of small and large intestine in X ray with contrast
B14.2- Interpret anatomical facts with its major clinical applications (duodenal ulcers, appendectomy)
B15.1- Interpret the normal anatomical appearance of rectum and anal canal in X ray with contrast
B15.2- Interpret anatomical facts with its major clinical applications, (hemorrhoids ruptured spleen & splenomegaly)
B16.1 Compare and differentiate between different parts of small intestine
B16.2 Compare between different types of cells and illustrate the significance of each cell
B16.3 Differentiate between small intestine, large intestine and appendix
B16.4 Interpret histological facts with clinical applications (malabsorption, Celiac disease, Crohn disease)
B17.1- Interpret the normal gastrointestinal motility with clinical applications (constipation).
B18.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regime
B19.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B19.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B19.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis
B20.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B20.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B20.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis

B21.1- Interpret anatomical facts with its major clinical applications (liver cirrhosis& portal hypertension, gall stones, cholecystitis& pancreatitis).
B22.1 Compare between different hepatic lobules and significance of each
B22.2 Discuss adaptation of of the liver structure to its functions
B22.3 Discuss liver regeneration
B22.4 Interpret histological facts with clinical applications (cirrhosis, jaundice, hepatitis
B23.1 Interpret the outcome of deficiency of the digestive enzymes
B23.2 Illustrate biochemical basis and outcome of: Malabsorption syndromes, Lactose intolerance, Steatorrhea & Pancreatitis
B23.3 Explain the role of bile on digestion.
B23.4 Discuss the biochemical basis of gall bladder stones.
B24.1 Classify and compare the various types of hyperbilirubinemia (jaundice) on biochemical basis.
B24.2 Predict causes of hyperbilirubinemia
B24.3 Illustrate biochemical disturbances associated with; Dubin-Johnson syndrome, Rotor syndrome, Gilbert syndrome Crigler-Najjar, haemochromatosis, & Wilson's diseases
B25.1- Interpret the clinical pictures and laboratory test results to identify bacteria causing diarrhea
B26.1- Interpret the clinical pictures and laboratory test results to identify viral causes diarrhea
B27.1- Understand the pathological conditions of pancreatitis.
B27.2- Understand the role of the liver in the digestive process and excretion of waste metabolites.
B27.3- Understand the recycling of bile via enterohepatic circulation.
B27.4- Interplay the bile secretion with clinical applications (jaundice).
B28.1- Interpret the pathophysiology of abnormal digestion of food in intestine.
B28.2- Integrate normal absorption with insufficient nutrient absorption.
B28.3- Explore the mechanism of diarrhea and its consequences.
For the following medically important parasites inhabiting small intestine; *Heterophyes heterophyes*, *Hymenolepis nana, Taenia saginata*& *T. solium* and Ascaris *lumbricoides*:
B29.1- Interpret different clinical presentations and correlate them to suspected parasites.
B29.2- Interpret similar stages of different parasites**.**
B29.3- Interpret the most suitable diagnostic technique for each parasitic problem**.**
B29.4-Interpret basic diagnostic features, general outline of prevention and control pathogenesis.
For the following medically important parasites inhabiting small intestine parasites; *Strongyloides stercoralis, Cryptosporidium parvum, Ancylostoma duodenale &Giardia lamblia:*
B30.1- Interpret different clinical presentations and correlate them to suspected parasites.
B30.2- Interpret similar stages of different parasites**.**
B30.3- Interpret the most suitable diagnostic technique for each parasitic problem**.**
B30.4-Interpret basic diagnostic features, general outlines of prevention and control pathogenesis.
B30.5-Interpret life-threatening conditions.
B31.1 Illustrate biochemical mechanisms of Hepatic Encephalopathy
B31.2 Discuss metabolic and biochemical basis of alcoholic and non- alcoholic liver disease (Fatty liver)
B32.1 Interpret liver function test in acute and chronic liver conditions
B32.2 Relate biochemical markers of GIT diseases to disease conditions

B33.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regimen
B34.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing hepatitis
B35.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing peritonitis, intraperitoneal infections and typhoid fever
B36.1- Interpret different clinical presentations and correlate them to suspected parasites
B36.2- Interpret basic diagnostic features, general outline of prevention and control of *Shistosoma mansoni*.
B36.3- Interpret methods of diagnosis, symptomatology, prevention and control of *Enterobius vermicularis*, *Trichiuris trichiura* and *E. histolytica.*
B36.4- Interpret and differentiate between Schistosomal & Amoebic dysentery
B37.1- Interpret different clinical presentations and correlate them to suspected parasites.
B37.2- Interpret basic diagnostic features, general outline of treatment and prevention and control of hepatic flukes.
B37.3- Interpret basic diagnostic features, pathogenesis, of hepatic Hydatid disease.
B38.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regimen
B39.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B39.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B39. 3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis
B40.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes.
B40.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology
B40.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis

C- Psychomotor skills

C1.1- Identify the arrangement of muscles of the anterior abdominal wall in their normal places in cadavers.
C1.2- Identify the inguinal canal (in cadavers and preserved specimens).
C1.3- Identify the surface anatomy of inguinal rings and inguinal canal.
C1.4- Identify the arrangement of different abdominal viscera in their normal places in cadavers.
C1.5- Identify the arrangement of different peritoneal folds and recesses in their normal places in cadavers.
C1.6- Construct the different stages of development & congenital anomalies of the gasto- intestinal system.
C2.1- Identify gross morphology of tongue, palate, salivary glands on the cadaver
C2.2-Identify the gross morphology of the stomach

C2.3- Identify the arrangement of the esophagus, and stomach in their normal places (in cadavers and preserved specimens)
C2.4- Identify the surface anatomy of the stomach.
C3.1-Identify different part of GIT wall in esophagus
C3.2- Identify and differentiate between salivary glands, Oral mucosa and tongue
C3.3-Identify and differentiate between the three regions of stomach
C4.1-Identify gross and microscopic features of mucoepidermoid carcinoma
C4.2- Describe the gross features of esophageal carcinoma
C4.3- Identify the gross characteristics of stomach ulcers and differentiate between peptic and malignant ulcers
C5.1- Identified electrical activities that lead to GIT motility.
C5.2- Identified different types of motilities of GIT.
C5.3- Identified different factories that increased or decreased GIT motility.
C6.1- Identify the arrangement of various parts of small and large intestine in their normal places in cadavers
C6.2- Identify the difference between the small and large intestine
C6.3- Identify the surface anatomy of the duodenum, caecum & appendix.
C6.4- Identify the arrangement of the rectum, anal canal and in their normal places in cadavers
C6.5- Identify the difference between upper and lower parts of anal canal
C7.1- Describe the gross and microscopic features of acute appendicitis
C5.2- Identify gross morphology of intussception
C7.3- Identify gross morphology of intestinal diverticulae
C7.3- Describe the gross pathology of amoebic colitis
C7.4- Describe the microscopic and gross features of colorectal carcinoma
C8.1- List the main causes of these disorder
C8.2- Identify the clinical picture of such disorder
C8.3- List the main drugs for its treatment
C8.4- List the main drugs for its treatment
C8.- Discuss the different mechanisms of action of different drug groups
C8.6- Review the most important drug-drug interactions of the different drug groups
C9.1- Identify the gross morphology of the liver, gall bladder and pancreas.
C9.2- Identify the arrangement of liver, gall bladder, portal vein and pancreas on their normal places in cadavers.
C9.3- Identify the surface anatomy of the liver, & fundus of gall bladder.
C9.3 - Identify the grossmorphology of the spleen
C9.4- Identify the surface anatomy of the spleen.
C10.1- Identify and differentiate between the three regions of small intestine, colon and appendix.
C10.2- Identify liver under microscopy with special reference to portal triad
C10.3- Identify stained section of Gall bladder and pancreas
C11.1- Identify common bacteria causing diarrhea (E coli, Salmonella, Shigella and Cholera)
C11.2- Identify the tracing of the source of infections
C12.1-List liver function tests.
C12.2- Describe the importance of liver function tests in the diagnosis of liver diseases.

C12.3- Explain the biochemical basis of liver function tests
C12.4 Perform various liver function tests
C12.5- Evaluate and interpret the laboratory reports of liver function test
C12.6- Examine true paint data and correlate with clinical presentations
C13.1-Identify and differentiate the microscopic morphology of H. heterophyes, H. nana, Taenia spp & A. lumbricoides eggs in slides.
C13.2- Identify and differentiate between the microscopic morphology of gravid segments of Taenia species in slides.
C13.3- Identify grossly the adults of *Taenia* sp, *Ascaris* in jars.
C13.4-Identify the microscopic morphology of *Ancylostoma duodenale* eggs in slides.
C13.5- Identify and differentiate the microscopic morphology of Giardia lamblia trophozoite and cyst stages in slides.
C13.6-Identify and differentiate the microscopic morphology of *Enterobius vermicularis*, *Trichiuris trichiura* eggs in slides.
C13.7- Identify the microscopic morphology of *Enterobius vermicularis* adults in slides.
C13.8-Identify and differentiate the microscopic morphology of *Entamoeba histolytica* trophozoite and cyst stages
C13.9- Identify the microscopic morphology of *Fasciola* sp eggs.
C13.10- Identify cross section in Hydatid cyst
C13.11-Identify the microscopic morphology of Adult *Shistosoma mansoni*, and eggs in slides
C13.12- Identify grossly Hydatid cyst in jars.
C14.1- Identify microscopic appearance of chronic hepatitis
C14.2- Describe gross morphology and microscopic features of liver cirrhosis

D- General and transferable skills
D1- Practice the skill of self-learning. D2- Demonstrate personal responsibility. D3- Practice the skill of respect colleagues. D4- Adhere to the value of teamwork by acting in small group. D5- Qualify adequate cooperation with his/her colleagues. D6- Justify the efforts required to accomplish the tasks in specified time. D7- Set the use of sources of biomedical information to remain current with advances in knowledge and practice. D8- Display freely, keeping an ethical behavior D9- Share in the work efficiently with the instruments and equipment's of the department in a responsible manner keeping them intact and clean. D10- Modify his capability to describe, discuss and solve problems. D11- Reflect on and assess his/her performance using various performance indicators and information sources

GASTROINTESTINAL SYSTEM TOPICS

Lectures						
Lecture title/topic NO		ILOs	Department	Week	Contact hours	NARS
1	Anterior abdominal wall, peritoneal cavity, and the peritoneum	A1.1-A1.4, B1.1-B1.3	Anatomy	1st	2	1.8 1.9 1.10 2.3 2.7 3.1 3.2 3.3, 4.1 4.6 4.8
2	Development & congenital anomalies of gastro-intestinal system	A2.1- A2.4 B2.1	Anatomy	1st	2	
3	Anatomy of oral cavity, salivary glands, oropharynx, esophagus& stomach	A3.1 A3.3 B3.1-B3. 3	Anatomy	1st	2	
4	Histology of oral cavity and salivary glands Histology of tongue and general plan of GIT	A4.1- A4.6 B4.1	Histology	1st	2	1.9, 1.10 2.1, 4.1, 4.2,5.3, 5.4 6.1, 6.2, 6.3, 6.4, 6,5
5	Function of digestive system, Control of GIT function, Chewing and Swallowing	A5.1-A5.5 B5.1- B5.5	Physiology	1st	1	1.8, 1.9, 4.1, 4.2, 4.5, 4.6, 5.4, 6.1-6.4
6	Histology of the stomach	A6.1- A6.3 B6.1- B6.3	Histology	1st	1	1.9, 1.10 2.1, 4.1 , 4.2 5.3, 5.4,6.1, 6.2, 6.3, 6.4,6,5
7	Physiology of The Mouth & esophagus	A7.1-A7.4 B7.1- B7.3	Physiology	1st	1	1.8, 1.9, 4.1, 4.2, 4.5, 4.6, 4.8, 5.4, 6.1-6.4
8	Physiology of The Stomach	A8.1-A8.5 B8.1- B8.3	Physiology	1st	2	
9	Pathology of the oral cavity, oropharynx, esophagus and salivary glands	A9.1- A9.7 B9.1-B9. 3	Pathology	1st	1	1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.4,3.1, 3.2. 4.3, 4.5, 4.6, 4.8, 5.3, 5.4, 5.5, 5.6, 5.7, 6.1, 6.2, 6.4, 6.5, 6.7
10	Pathology of the Stomach	A10.1-A10.5 B10.1-B10.3	Pathology	1st	1	
11	Drugs used in peptic ulcer disease and antiemetic drugs	A11.1-A11.6 B11.1	Pharmacology	1st	2	1.6, 1.8., .10.1.16. 2.3., 2.4., 2.5., 2.6 4.5., 4.6., 4.8
12	Classification of infections of the GIT, Viral diseases of the upper digestive system, Helicobacter pylori and gastric ulcer disease	A12.1-A12.5 B12.1	Microbiology	2nd	2	1.6 1.8 1.10 1.16, 2.4 2.5 2.6 4.5 4.6 4.8
13	Food poisoning	A13.1-A13.2 B13.1-	Microbiology	2nd	1	

14	Anatomy of the small intestine and large intestine	A14.1A14.2 B14.1-B14.2	Anatomy	2nd	1	1.8 1.9 1.10 2.3 2.7 3.1 3.2 3.3, 4.1 4.6 4.8
15	Anatomy of the rectum, anal canal and spleen	A15.1-A15.2 B15.1B15.2	Anatomy	2nd	1	
16	Histology of the Small and large Intestine	A16.1-A16.3 B16.1-B16.4	Histology	2nd	1	1.9, 1.10 2.1, 4.1, 4.25.3, 5.4 6.1, 6.2, 6.3, 6.4, 6,5
17	Intestinal motility and Defecation	A17.1-A17.4 B17.1	Physiology	2nd	2	1.8, 1.9, 4.1, 4.2, 4.5, 4.6, 4.8, 5.4, 6.1-6.4
18	Drugs affecting gastro-intestinal motility,Anti-diarrheal/Laxatives /Spasmolytic drugs - Treatment of inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS)	A18.1-A18.4 B18.1	Pharmacology	2nd	2	1.6, 1.8., 1.10.1.16. 2.3., 2.4., 2.5., 2.6, 4.5., 4.6., 4.8
19	Pathology of the small intestine	A19.1A19.5 B19.1-B19.3	Pathology	2nd	2	1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.4,3.1, 3.2. 4.3, 4.5, 4.6, 4.8, 5.3, 5.4, 5.5, 5.6, 5.7, 6.1, 6.2, 6.4, 6.5, 6.7
20	Pathology of the colon and rectum	A20.1-A20.7 B20.1-B20.3	Pathology	2nd	2	
21	Anatomy of the Liver, Biliary system and Pancreas	A21.1-A21.4 B21.1-	Anatomy	2nd	1	1.8 1.9 1.10 2.3 2.7 3.1 3.2 3.3 4.1 4.6 .8
22	Histology of the liver Histology of gall bladder and pancreas	A22. -A22.5 B22.1-B22.3	Histology	2nd	2	1.9, 1.10 2.1, 4.1, 4.2 5.3, 5.4 6.1, 6.2, 6.3, 6.4, 6,5
23	Biochemistry of Digestion and absorption.	A23.1-A23.3 B23.1-B23.4	Biochemistry	3rd	2	1.6, 1.8 ,1.9 1.10 , 2.3, 4.5, 4.6 ,4.8
24	Bilirubin Metabolism & Its inborn errors of metabolism.	A24.1A24.4 B24.1 B24.3	Biochemistry	3rd	2	
25	Diarrhea I	A25.1-A25.4 B25.1	Microbiology	3rd	1	1.6 , 1.8 1.10 1.16 2.4 2.5 , 2.6, 4.5 4.6 4.8
26	Diarrhea II	A26.1-A26.4 B26.1	Microbiology	3rd	1	
27	Exocrine pancreas, liver & biliary system	A27.1-A27.9 B27.1-B27.4	Physiology	3rd	2	1.8 1.9 4.1 4.2 4.5 4.6 5.4 6.1-6.4
28	Intestinal Secretions & Absorption	A28.1-A28.7 B28.1-B28.3	Physiology	3rd	2	

29	Small intestinal parasites I	A29.1A29.5 B29.1-B29.4	Parasitology	3rd	1	1.6 1.8 1.10 1.16, 2.4 2.5 2.6, 4.5 4.6 4.8
30	Small intestinal parasites II	A30.1-A30.5 B30.1-B30.5	Parasitology	3rd	1	

31	Metabolism of Xenobiotics	A31.1-A31.3 B31.1-B31.2	Biochemistry	4th	2	1.6 1.8 1.9 1.10 2.3 4.5 4.6 4.8
32	Liver and GIT biomarkers	A32.1-A32.2 B32.1-B32.2	Biochemistry	4th	2	
33	Drug-induced liver disease	A33.1-A33.2 B33.1	Pharmacology	4th	1	1.6 1.8 1.10 1.16 2.3 2.4 2.5 2.6 .5 4.6 4.8
34	Viral Hepatitis	A34.1-A34.5 B34.1	Microbiology	4th	2	1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8
35	Peritonitis and intra- abdominal Infections Typhoid and paratyphoid	A35.1-A35.8 B35.1	Microbiology	4th	2	
36	Large intestinal parasites	A36.1-A36.6 B36.1-B36.4	Parasitology	4th	2	1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8
37	Hepatobiliary parasites	A37.1-A37.6 B37.1-B37.3	Parasitology	4th	2	
38	Anti-protozoal & Ant-helminthic Drugs	A38.1-A38.3 B38.1	Pharmacology	4th	1	1.6 1.8 1.10 1.16, 2.3 2.4 2.5, 2.6 4.5 4.6 4.8
39	Pathology of the liver	A39.1 A39.7 B39.1-B39.3	Pathology	4th	2	1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.4, 3.1, 3.2. 4.3, 4.5, 4.6, 4.8, 5.3, 5.4, 5.5, 5.6, 5.7, 6.1, 6.2, 6.4, 6.5, 6.7
40	Pathology of the gall bladder, biliary tract, pancreas and peritoneum	A40.1-A40.5 B40.1-B40.3	Pathology	4th	2	
Total					64 hours	

GASTROINTESTINAL System Practical TOPICS OUTLINES

Practical					
Topic title/ NO		ILOs	Department	Week	Contact hours
P 1	Anterior abdominal wall, peritoneal cavity, and the peritoneum Development & congenital anomalies of gastro-intestinal system	C1.1-C1.6	Anatomy	1st	2
P 2	Anatomy of the oral cavity, salivary glands & stomach	C2.1- C2.4	Anatomy	1st	2
P 3	Histology of the oral cavity, oropharynx, esophagus salivary glands, and stomach	C3.1- C3.3	Histology	1st	2
P4	Pathology of the oral cavity, oropharynx, esophagus salivary glands, and stomach	C4.1- C4.3	Pathology	2nd	2
P5	Physiology of Gastric motility	C5.1- C5.3	Physiology	2nd	2
P6	Anatomy of the small intestine,	C6.1- C6.5	Anatomy	2nd	2
P7	Anatomy of large intestine, rectum & anal canal	C6.1- C6.5	Anatomy	2nd	2
P8	Histology of small and large intestine, appendix	C10.1	Histology	2nd	2
P9	Pathology of the small intestine, colon and rectum	C7.1-C7.4	Pathology	2nd	2
P10	Pharmacotherapy of acid peptic disorder	C8.1-C8.6	Pharmacology	2nd	2
P11	Esophageal Motility Disorder Gastroesophageal reflux disease (GERD) Reflux Esophagitis	C8.1-C8.6	Pharmacology	3nd	2
P12	Histology of the liver, gall bladder, biliary tract, & pancreas	C9.1- C9.4	Histology	3rd	2
P13	Anatomy of the liver & spleen	C10.1- C10.3	Anatomy	3rd	2
P14	GIT secretions	C11.1-C11.3	Physiology	3rd	2
P15	Stool examination part 1	C11.1 C11.2	Microbiology	3rd	2
P16	Stool examination part 2	C11.1 C112	Microbiology	4th	2
P17	Small intestinal parasites	C13.1-C13.5	Parasitology	3rd	2
P18	Liver function test	C12.1- C12.6	Biochemistry	4th	2
P19	Large intestinal & hepatobiliary parasites	C13.6-C13.12	Parasitology	4th	2
P20	Pathology of the liver, gall bladder, biliary tract, pancreas and peritoneum part 1	C14.1- C14.6	Pathology	6th	2

P21	Pathology of the liver, gall bladder, biliary tract, pancreas and peritoneum part 2	C14.1- C14.6	Pathology	6th	2

GASTROINTESTINAL SYSTEM PRACTICAL TOPICS OUTLINES

Case Based Group Discussion

	Topic title/NO	ILOs	Department	Week	Contact hours
GD 1	1. Abdominal incisions 2. Internal abdominal hernia 3. Cleft lip 4. Palatine tonsil development 5. Esophageal atresia 6. Tracheoesophageal fistula 7. Volvulus 8. Meckel diverticulum 9. Hirschsprung disease 10. Peritoneal folds development	D1- Practice the skill of self-learning. D2-Demonstrate personal responsibility. D3- Practice the skill of respect colleagues. D4- Adhere to the value of teamwork by acting in small group. D5- Qualify adequate cooperation with his/her colleagues. D6- Justify the efforts required to accomplish the tasks in specified time. D7- Set the use of sources of biomedical information to remain current with advances in knowledge and practice. D8- Display freely, keeping an ethical behavior D9- Share in the work efficiently with the instruments and equipments of the department in a responsible manner keeping them intact and clean. D10- Modify his capability to describe, discuss and solve problems. D11- Reflect on and assess his/her performance using various performance indicators and information sources	Anatomy	1st	2
GD 2	1. Case of achalasia. 2. Case of vomiting.		Physiology	1st	2
GD 3	1. Case study on Barret's esophagus 2. Case study on gastritis and peptic ulcer 3. Case study on inflammatory bowel disease		Pathology	2nd	2
GD 4	1. Upper gastrointestinal tract: A case of peptic ulcer 2. Lower gastrointestinal tract: A case of malabsorption 3. Hepatobiliary system: A case of obstructive jaundice		Histology	2rd	2
GD 5	1. Malabsorption syndrome 2. Pancreatitis 3. Gallstones		Biochemistry	3rd	2
GD 6	1. Case of jaundice. 2. Case of diarrhea and constipation.		Physiology	3rd	2
GD 7	1. Diarrhea		Parasitology	3rd	2
GD 8	1. Mumps 2. Helicobacter pylori 3. Food poisoning 4. Diarrhea		Microbiology	3rd	2
GD 9	1. Liver dysfunction 2. Jaundice		Biochemistry	4th	2
GD 10	1. Peritonitis and intra -abdominal infections 2. Typhoid 3. Viral Hepatitis		Microbiology	4th	2
GD 11	1. Hepatic parasites and hepatic space occupying lesions.		Parasitology	4th	2
GD 12	1. Drug-induced liver disease 2. Hepatitis C 3. Hepatitis B		Pharmacology	4th	2
GD 13	1. Case study on intestinal obstruction 2. Case study on hepatitis and liver cirrhosis 3. Case study on hepatic focal lesion 4. Case study on hepatomegaly		Pathology GD 2	4th	2

Total contact hours and credit points

	Lectures	Practical	Case-based Group Discussions	Formative quiz, assignment	SDL	Total
Contact Hours	**64**	**42**	**26**	**26**	**158**	**158**
Credit Points	**2.1**	**1.4**	**0.86**	**0.86**	**4.5**	**10.5**

Teaching and learning methods:

1- Lectures for knowledge and intellectual skill outcomes.

2- Practical sessions to gain psychomotor skills and using practical book.

3- Self-directed learning (SDL) and case-based group discussion for the topics studied in lectures or related topics, including libraries, E-learning (photographs, reading cases and solving of questions - available online) as well as consulting professors for gathering of information.

Student Assessment:

1. Formative:

This is used to monitor student's learning to provide ongoing feedback that can be used by instructors to improve their teaching and by students to improve their learning.

It's given at least once in the form of quizzes that is made available for the students at the E-learning site at the end of the block.

Answers are presented instantly after the attempts and discussed on the students groups or in person with the teaching staff

Questions should be consistent with the level of the final exam. The student's attendance is a condition for entering the summative exams. The electronic or paper achievement file must be used to follow up on

2. Summative

It is used to evaluate student's achievements at the end of the block. The grades tell whether the student achieved the learning goal or not.

Assessment task	Week Due	Proportion of Total Assessment	Marks
Portfolio assessment	5th week	**10%**	**15**
Midterm examination	5th week	**20%**	**32**
OSPE exam for practical	7th week	**30%**	**47**
Final written Exams (50% MCQs, 50% MEQs written)	7th week	**40%**	**64**
Total		**100**	**158**

GASTROINTESTINAL SYSTEM LECTURE TOPICS OUTLINES

Lecture title/topic NO		Learning objectives and content	Department	NARS
1st Week Lectures				
1	Anterior abdominal wall, peritoneal cavity, and the peritoneum	**Reference book:** **Oxford handbook of Medical Sciences 2011, pp. 512- 518** **Knowledge:** A1.1- Describe the anatomy of the anterior abdominal wall (Superficial fascial layer, muscles, rectus sheath, innervations and blood supply). A1.2- Describe the normal anatomy of inguinal canal (Site, coverings and contents of the spermatic cord, boundaries of the inguinal canal). A1.3- Describe the surface landmarks of the superficial and deep inguinal rings, inguinal canal. A1.4- Describe the normal anatomy of the peritoneal cavity (Peritoneal ligaments, mesentery, omentum, greater and lesser sacs, epiploic foramen and peritoneal recesses). **Intellectual:** B1.1 - Interpret anatomical facts with its major clinical applications (abdominal incisions& hernias) B1.2 -Interpret anatomical facts with its major clinical applications (inguinal hernias). B1.3 - Interpret anatomical facts with its major clinical applications (ascites)	**Anatomy 1**	**1.8 1.9 1.10 2.3 2.7 3.1 3.2 3.3 4.1 4.6 4.8**
2	Development & congenital anomalies of gastro-intestinal system	**Reference book:** **Lippincott Illustrated Reviews: Integrated systems, pp.299-303** **Knowledge:** A2.1- Describe the normal development and the developmental defects of the oral cavity, lingual space, and salivary glands A2.2- Describe the normal development and the developmental defects of the esophagus, stomach, and abdominal viscera. A2.3- Describe the normal development and the developmental abnormalities of the small and large intestines, rectum, and anus. A2.4- Describe the normal development and the developmental defects of the pancreas, liver, and gallbladder. **Intellectual:** B2.1- Interpret some clinical findings in relation to developmental basis (Esophageal atresia with tracheoesophageal fistula, pyloric stenosis Omphalocele, gastroschisis, Meckel's diverticulum, duodenal stenosis, annular pancreas, Hirschsprung disease, extrahepatic biliary atresia).	**Anatomy 2**	

3	**Anatomy of oral cavity, salivary glands, oropharynx, esophagus& stomach**	**Reference book:** **Oxford handbook of Medical Sciences 2011, pp. 524-528** **Systems of the body: the digestive system. Basic science and clinical conditions, pp.22, 29** **Knowledge:** A3.1- Describe normal anatomy of oral cavity (**Oxford handbook** pp.700), salivary glands (**Oxford handbook** pp.552), & oropharynx (**Oxford handbook** pp.364). A3.2 -Describe the normal anatomy of the esophagus (Divisions, narrowing, blood supply, venous drainage, lymphatic drainage and innervations) A3.3- Describe the normal anatomy of the stomach (gross anatomy, anatomical relations, blood supply, venous drainage, lymphatic drainage and innervations) **Intellectual:** B3.1- Interpret anatomical facts with its major clinical applications (Denervation following wisdom tooth extraction and parotid gland tumors) B3. 2- Interpret normal appearance of esophagus and stomach on X ray with contrast B3.3- Interpret anatomical facts with its major clinical applications (esophageal varices, and gastric ulcers).	**Anatomy 3**	
4	**Histology of oral cavity and general plan of GIT and salivary glands**	**Reference book:** **Oxford handbook of Medical Sciences 2011** **Lippincott Illustrated Reviews: Integrated systems** **First aid for USMLE step 1** **Integrated System Book 310 – 311** **Junqueira's Basic Histology Text & Atlas (Anthony L. Mescher).2016 Fourteenth Edition** **Knowledge:** A4.1- Recognize and identify the parts of the digestive system. A4.2- Discuss the normal structure of oral mucosa. A4.3- Describe the normal structure of tongue. A4.4- List the names of salivary glands A4.5- Identify and describe the normal structure of the four layers of the GIT wall (general plane). A4.6- Recognize the structure of esophagus **Intellectual:** B4.1 Interpret histological facts with clinical applications (Oral thrush& esophageal stricture, reflux esophagitis).	**Histology 1**	**1.9, 1.10 2.1, 4.1, 4.2 5.3, 5.4 6.1, 6.2, 6.3, 6.4, 6,5**
5	**Function of digestive system, Control of GIT function, Chewing and Swallowing**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 2-3, 13-18, 27-29, 35-38.** **Knowledge:** A5.1- State the functions of the digestive system. A5.2- Know electrical activity of GIT. A5.3- Know nervous, hormonal and autonomous regulation of GIT secretion and motility.	**Physiology 1**	**1.8, 1.9, 4.1, 4.2, 4.5, 4.6, 5.4, 6.1-6.4**

		A5.4- Know different types of motilities of GIT. A5.5- Know different hormones secreted by the GIT. **Intellectual:** B5.1- Compare between myenteric and submucosal enteric plexuses of nervous. B5.2- Compare long and short reflexes that controlGIT. B5.3- Explore functions of different hormones of GIT. B5.4- Explore difference between conditional and unconditional reflexes.		
6	**Histology of the stomach**	**Reference book:** **Integrated System Book 312&313** **First Aid for the USMLE 356** **Junqueira's Basic Histology Text & Atlas (Anthony L. Mescher).2016 Fourteenth Edition** **Knowledge**: A6.1 Recognize the parts of the stomach (cardia, fundus and pylorus). A6.2 Discuss the normal structure of stomach fundus. A6.3 List the types of different cells lining the gastric glands **Intellectual**: B6.1 Compare between different parts of stomach and how can differentiate between them. B6.2 Compare between different types of cells and significance of each cell B6.3 Interpret histological facts with clinical applications (Pernicious anemia, gastritis and gastric ulcer	**Histology 2**	**1.9, 1.10 2.1, 4.1, 4.2 5.3, 5.4 6.1, 6.2, 6.3, 6.4, 6,5**
7	**Physiology of The Mouth & esophagus**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 30-35, 43, 52-59, 65-66.** **Knowledge:** A7.1- Know chewing reflex. A7.2- Name salivary glands and describe the composition, mechanism and control of salivary secretion A7.3. Know functions of saliva A7.4. Know different phases of swallowing **Intellectual:** B7.1- Explore digestive functions of the saliva. B7.2. Explore phases of salivary secretion. B7.3-Explore protective reflexes during swallowing.	**Physiology 2**	**1.8, 1.9, 4.1, 4.2, 4.5, 4.6, 4.8, 5.4, 6.1-6.4**

8	**Physiology of The Stomach**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 30-35, 43, 52-59, 65-66, 122-126.** **Knowledge:** A8.1- Know functions of the stomach. A8.2- Describe control of gastric secretions and motility. A8.3- Describe different phases of gastric secretion. A8.4- Describe control of gastric functions. A8.5- Define vomiting and know its causes. **Intellectual:** B8.1- Interpret on the digestive functions of the stomach. B8.2. Explore factors increase and decrease stomach secretion and motility. B8.3 Explore mechanism of vomiting and its side effects.	**Physiology 3**	
9	**Pathology of the oral cavity, oropharynx, esophagus and salivary glands**	**Reference book:** **Elsevier's Integrated Pathology (217-221)** **USMLE Step 1: Pathology (14-1: 14-5)** **Knowledge and understanding** A9.1- Define inflammatory lesions of the oral cavity A9.2- Outline tumors of the lips with brief description of squamous cell carcinoma. A9.3- Enumerate ulcers, precancerous lesions and tumors of the tongue A9.4- List causes of enlargement of the parotid gland A9.5- Classify tumors of the salivary glands with brief description of mixed salivary gland tumor and mucoepidermoid carcinoma A9.6- Define gastroesophageal reflux disease. Describe Barrett's esophagus and enumerate its effects. A9.7- Classify tumors of the esophagus with emphasis on esophageal carcinoma **Intellectual skills** B9.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B9.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B9.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis	**Pathology 1**	**1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 2.4, 3.1, 3.2. 4.3, 4.5, 4.6, 4.8, 5.3, 5.4, 5.5, 5.6, 5.7, 6.1, 6.2, 6.4, 6.5, 6.7**
10	**Pathology of the Stomach**	**Reference book:** **Elsevier's Integrated Pathology (221- 224)** **USMLE Step 1: Pathology (14-6: 14-11)** **Knowledge and understanding** A10. 1- Mention etiology of acute and chronic gastritis A10. 2- Define chronic gastritis and list the major causes with brief description of its pathological features and subtypes. A10.3 -Define peptic ulceration and list sites, causes, pathogenesis and complications of peptic ulceration. A10. 4 -Classify tumors of the stomach.	**Pathology 2**	**1.5, 1.6. 1.7, 1.8, 1.9, 1.10. 2.4. 3.1., 3.2. 4.3., 4.5., 4.6., 4.8 5.3., 5.4., 5.5., 5.6, 5.7. 6.1., 6.2., 6.4., 6.5., 6.7.**

		A10.5- Describe gastric carcinoma, enumerate its risk factors, highlight the gross appearance, microscopic types and mention its prognosis. **Intellectual skills** B10.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B10.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B10.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis		
11	**Drugs used in peptic ulcer disease and antiemetic drugs**	**Reference book:** **Edition, 401-409 Lippincott and illustrated reviews, pharmacology, 6th** **Knowledge:** A11.1- Explain the pathogenesis and clinical picture of peptic ulcer disease. A11.2- Classify agents that is effective in treating peptic ulcer disease. A 11.3- Explain the mechanism of action, pharmacokinetics and therapeutic uses of drugs used to treat peptic ulcer disease. A11.4- List the adverse effects of each drug group. A11.5- Recall the pathogenesis of vomiting in general including the emetic actions of chemotherapeutic drugs. A11.6- State the major categories of drugs used to control vomiting. **Intellectual:** B11.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regimen.	**Pharmacology 1**	**1.6, 1.8., 1.10. 1.16. 2.3., 2.4., 2.5., 2.6 4.5., 4.6., 4.8**
1st Week Practical Sessions				
P 1	***Anterior abdominal wall, peritoneal cavity, and the peritoneum*** ***Development & congenital anomalies of gastro-intestinal system***	C1.1- Identify the arrangement of muscles of the anterior abdominal wall in their normal places in cadavers. C1.2- Identify the inguinal canal (in cadavers and preserved specimens). C1.3- Identify the surface anatomy of inguinal rings and inguinal canal. C1.4- Identify the arrangement of different abdominal viscera in their normal places in cadavers. C1.5- Identify the arrangement of different peritoneal folds and recesses in their normal places in cadavers. C1.6- Construct the different stages of development & congenital anomalies of the gastro- intestinal system.	**Anatomy practical 1**	
P 2	***Anatomy of the oral cavity, salivary glands & stomach***	C2.1- Identify gross morphology of tongue, palate, salivary glands on the cadaver C2.2-Identify the gross morphology of the stomach C2.3- Identify the arrangement of the esophagus, and stomach in their normal places (in cadavers and preserved specimens)	**Anatomy practical 2**	

		C2.4- Identify the surface anatomy of the stomach.		
P 3	***Histology of the oral cavity, oropharynx, esophagus salivary glands, and stomach***	C3.1-Identify different part of GIT wall in esophagus C3.2- Identify and differentiate between salivary glands, Oral mucosa and tongue C3.3-Identify and differentiate between the three regions of stomach	**Histology practical 1**	
1ST Week Case Based Group Discussion				
GD 1	**1. Abdominal incisions** **2. Internal abdominal hernia** **3. Cleft lip** **4. Palatine tonsil development** **5. Esophageal atresia** **6. Tracheoesophageal fistula** **7. Volvulus** **8. Meckel diverticulum** **9. Hirschsprung disease** **10. Peritoneal folds development**	Interpret anatomical facts with it's major clinical applications (abdominal incisions& hernias) Interpret some clinical findings in relation to developmental basis	**Anatomy GD 1**	
GD 2	**1. Case of achalasia.** **2. Case of vomiting.**	Identify the lower esophageal sphincter. Mechanism of lower esophageal sphincter dysfunction. Effect of achalasia. Identify the mechanism of vomiting. Detect its sequence of events. Identify the effect of vomiting.	**Physiology GD 1**	

GASTROINTESTINAL SYSTEM LECTURE TOPICS OUTLINES

Lecture title/topic NO		Learning objectives and content	Department	NARS
2nd Week Lectures				
12	**Classification of infections of the GIT, Infections of the of the upper digestive system and salivary glands**	**Reference book:** **Lecture notes** **Common Infections of the Mouth- Mumps: First AID For the basic sciences: Organ Systems pp 211- 212** ***Helicobacter pylori:* First AID for the USMLE step 1, pp 146** **Knowledge:** A12.1- Classify GIT infections A12.2- Demonstrate the important features of the HSV1, mumps viruses and *Helicobacter pylori*. A12.3- Explain the epidemiology, pathogenesis and clinical picture of each microorganism A12.4- Recall the important laboratory diagnosis of each microorganism A12.5- List the prevention of each microorganism **Intellectual:** B12.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing infections of the upper GIT and upper salivary glands.	**Microbiology 1**	**1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8**
13	**Food poisoning**	**Reference book:** **Lecture notes** **Lippincott's illustrated reviews (Page: 319)** **Elsevier's integrated review immunology and microbiology (Pages: 105,106, 109, 111,112, 115)** **Knowledge:** A13.1- Define the term food poisoning A13.2- Memorize the common organisms causing food poisoning A13.3- Recall the pathogenesis of food poisoning produced by B. cereus, Staph. aureus, C. botulinum and C. perfringens A13.4- State the laboratory diagnosis of food poisoning **Intellectual:** B13.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing food poisoning.	**Microbiology 2**	
14	**Anatomy of the small intestine and large intestine**	**Reference book:** **Oxford handbook of Medical Sciences 2011, pp. 530-537** **Knowledge:** A14.1- Describe the normal anatomy of duodenum, jujenum, and ileum A14.2- Describe the normal anatomy of various parts of large intestine **Intellectual:** B14.1- Interpret the normal anatomical appearance of small and large intestine in X ray with contrast B14.2- Interpret anatomical facts with its major clinical applications (duodenal ulcers, appendectomy)	**Anatomy 4**	**1.8 1.9 1.10 2.7 3.1 3.2 3.3 4.1 4.6 4.8**

15	**Anatomy of the rectum, anal canal and spleen**	**Reference book:** **Oxford handbook of Medical Sciences 2011, pp.538-543** **Knowledge:** A15.1- Describe the normal anatomy of rectum & anal canal A15. 2-Describe the normal anatomy of the spleen **Intellectual:** B15.1- Interpret the normal anatomical appearance of rectum and anal canal in X ray with contrast B15.2- Interpret anatomical facts with its major clinical applications (haemorrhoids ruptured spleen & splenomegaly)	**Anatomy 5**	**1.8 1.9 1.10 2.7 3.1 3.2 3.3 4.1 4.6 4.8**
16	**Histology of the Small and large intestine**	**Reference book:** **Lippincott's Integrated System Book 316 &317 and 330** **Knowledge:** A16.1 Recognize the parts of the small intestine (duodenum, jejunum, and ileum). A16.2 Describe the normal structure of intestinal villi and Crypts of Lieberkühn A16.3 List the types of different cells lining the villi and glands and their structure and functions **Intellectual:** B16.1 Compare and differentiate between different parts of small intestine B16.2 Compare between different types of cells and illustrate the significance of each cell B16.3 Differentiate between small intestine, large intestine and appendix B16.4 Interpret histological facts with clinical applications (malabsorption, Celiac disease, Crohn disease)	**Histology 3**	**1.9 1.10 2.1 4.1 4.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5**
17	**Intestinal motility and Defecation**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 122-126** **Knowledge:** A17.1- Know types of intestinal motility and its control. A17.2- Know the function of ileocecal valve. A17.3- State the movement of the colon. A17.4- Demonstrate the mechanism of defecation. **Intellectual:** B17.1- Interpret the normal gastrointestinal motility with clinical applications (constipation).	**Physiology 4**	**1.8 1.9 4.1 4.2 4.5 4.6 5.4 6.1-6.4**
18	**Drugs affecting gastro-intestinal motility Anti-diarrheal/ Laxatives /Spasmolyticdrugs** **- Treatment of inflammatory bowel disease (IBD) and irritable bowel**	**Reference book:** **Lippincott and illustrated reviews, pharmacology, 6th edition, 409-411/ 67** **Knowledge:** A18.1- Recall the classification of Antidiarrheals/Laxatives/Antispasmodics. A18.2- State the basis of the mechanisms of actions of the previous drugs. A18.3- State medications commonly used to treat IBD A18.4- State medications commonly used to treat IBS	**Pharmacology 2**	**1.6 1.8 1.10 1.16 2.3 2.4 2.5 2.6 4.5 4.6 4.8**

	syndrome (IBS)	**Intellectual:** B18.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regime		
19	**Pathology of the small intestine**	**Reference book:** **Elsevier's Integrated Pathology (224-236)** **USMLE Step 1: Pathology (14-11: 14-22)** **Knowledge:** A19.1- List the most common syndromes associated with malabsorption with brief description of each syndrome A19.2- Describe the formation, gross picture, complications and fate of typhoid ulcer in the small intestine. A19.3- Define dysentery and enumerate its common types. A19.4- Mention pathogenesis of amoebic and bacillary dysentery and describe their gross and microscopic features and list their complications A19.5- Define inflammatory bowel disease and mention its causes and complications **Intellectual:** B19.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B19.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B19.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis	**Pathology 3**	**1.5 1.6 1.7 1.8 1.9 1.10 2.4 3.1 3.2 4. 4.5 4.6 4.8 5.3 5.4 5.5 5.6 5.7 6.1 6.2 6.4 6.5 6.7**
20	**Pathology of the colon and rectum**	**Reference book:** **Elsevier's Integrated Pathology (224-236)** **USMLE Step 1: Pathology (14-22: 14-30)** **Knowledge:** A20.1- Discuss etiology, gross and microscopic features and complication of acute appendicitis A20.2- Define acute intestinal obstruction and outline its types and effects. A20.3- Enumerate causes of chronic intestinal obstruction A20.4- Define megacolon and enumerate its effects. A20.5 - Enumerate types of colonic polypi and syndromes associated with these polypi A20.6- Classify tumors of the colon giving an account of colorectal carcinoma, emphasizing risk factors, pathological features and prognosis A20.7- Enumerate causes of bleeding per rectum **Intellectual:** B20.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B20.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B20.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis	**Pathology 4**	

21	**Anatomy of the Liver, Biliary system and Pancreas**	**Reference book:** **Oxford handbook of Medical Sciences 2011, pp. 544-546** **Knowledge:** A21.1- Describe the normal anatomy of the liver. A21.2- Describe the important sites of porto-systemic anastomosis. A21.3- Describe the normal anatomy of biliary system A21.4- Describe the normal anatomy of the pancreas **Intellectual:** B21.1- Interpret anatomical facts with its major clinical applications (liver cirrhosis& portal hypertension, gall stones, cholecystitis& pancreatitis).	**Anatomy 6**	**1.8 1.9 1.10 2.7 3.1 3.2 3.3 4.1 4.6 4.8**
22	**Histology of the liver, gall bladder and pancreas**	**Reference book:** **Lippincott Integrated System Book:320 -322** **Knowledge**: A22.1 Identify the accessory or associated glands A22.2 Describe the structure of liver A22.3 Explain the Liver organization and Liver lobules A22.4 Describe the normal structure of hepatocytes A22.5 Exocrine pancreas structure **Intellectual:** B22.1 Compare between different hepatic lobules and significance of each B22.2 Discuss adaptation of the liver structure to its functions B22.3 Discuss liver regeneration B22.4 Interpret histological facts with clinical applications (cirrhosis, jaundice, hepatitis	**Histology 4**	**1.9 1.10 2.1 4.1 4.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5**
2nd Week Practical Sessions				
P4	**Pathology of the oral cavity, oropharynx, esophagus salivary glands, and stomach**	C4.1-Identify gross and microscopic features of mucoepidermoid carcinoma C4.2- Describe the gross features of esophageal carcinoma C4.3- Identify the gross characteristics of stomach ulcers and differentiate between peptic and malignant ulcers	**Pathology Practical 1**	
P5	**Physiology of Gastric motility**	Gastric motility C5.1- Identified electrical activities that lead to GIT motility. C5.2- Identified different types of motilities of GIT. C5.3- Identified different factory that increased or decreased GIT motility.	**Physiology practical 1**	
P6	**Anatomy of the small intestine, large intestine, rectum & anal canal**	C6.1- Identify the arrangement of various parts of small and large intestine in their normal places in cadavers C6.2- Identify the difference between the small and large intestine C6.3- Identify the surface anatomy of the duodenum, caecum & appendix. C6.4- Identify the arrangement of the rectum, anal canal and in their normal places in cadavers C6.5- Identify the difference between upper and lower parts of anal canal	**Anatomy practical 3**	

P7	**Pathology of the small intestine, colon and rectum**	C7.1- Describe the gross and microscopic features of acute appendicitis C7.2- Identify gross morphology of intussception C7.3- Identify gross morphology of intestinal diverticulae C7.3- Describe the gross pathology of amoebic colitis C7.4- Describe the microscopic and gross features of colorectal carcinoma	**Pathology Practical 2**	
P8	**Esophageal Motility Disorder Gastroesophageal reflux disease (GERD) Reflux Esophagitis**	C8.1- List the main causes of these disorder C8.2- Identify the clinical picture of such disorder C8.3- List the main drugs for its treatment C8.4- List the main drugs for its treatment C8.5- Discuss the different mechanisms of action of different drug groups C8.6- Review the most important drug-drug interactions of the different drug groups	**Pharmacology practical 1**	
2nd Week Case Based Group Discussion				
GD 3	**Case study on Barret's esophagus Case study on gastritis and peptic ulcer Case study on inflammatory bowel disease**	Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis	**Pathology GD 1**	

GASTROINTESTINAL SYSTEM LECTURE TOPICS OUTLINES

Lecture title/topic NO		Learning objectives and content	Department	NARS
3rd Week Lectures				
23	**Biochemistry of Nutrient Digestion**	**Reference book:** **Lecture notes** **Integrated medical science the essential 86-97** **First Aid for basic science 200-203, 205,215-217, 220, 224-225** **First Aid USMLE 365-367** **Lippincott's 307- 308** **Oxford handbook of medical sciences 560-564** **Knowledge**: A23.1 List the various enzymes participating in digestion processes of carbohydrates, proteins, lipids, and nucleic acid and mention their specific role. A23.2 List the precursors of bile acids describe their synthesis and composition. A23.3 Mention functions for each of bile components **Intellectual:** B23.1 Interpret the outcome of deficiency of the digestive enzymes B23.2 Illustrate biochemical basis and outcome of: Malabsorption syndromes, Lactose intolerance, Steatorrhea & Pancreatitis B23.3 Explain the role of bile on digestion. B23.4 Discuss the biochemical basis of gall bladder stones.	**Biochemistry 1**	**1.6** **1.8** **1.9** **1.10** **2.3** **4.5** **4.6** **4.8**
24	**Bilirubin Metabolism & Its Inborn Errors of Metabolism**	**Reference book:** **Lecture notes** **Integrated medical science the essential 78-81** **First Aid for basic science 208-209** **First Aid for USMLE 369** **Knowledge:** A24.1 Outline the steps of heme catabolism (bilirubin formation). A24.2 List the products of heme catabolism and their fate. A24.3 Mention the biochemical differences between unconjugated (indirect) and conjugated (direct) bilirubin. A24.4 Define hyperbilirubinemia and jaundice. **Intellectual:** B24.1 Classify and compare the various types of hyperbilirubinemia (jaundice) on biochemical basis. B24.2 Predict causes of hyperbilirubinemia B24.3 Illustrate biochemical disturbances associated with; Dubin-Johnson syndrome, Rotor syndrome, Gilbert syndrome Crigler-Najjar, haemochromatosis, & Wilson's diseases	**Biochemistry 2**	**1.6** **1.8** **1.9** **1.10** **2.3** **4.5** **4.6** **4.8**

25	**Diarrhea I**	**Reference Book:** **Lecture notes** **Lippincott Illustrated Reviews: Integrated Systems pp 318-319** **First AID For the basic sciences: Organ Systems pp231 for Pseudomembranous colitis only.** **Integrated Medicinal Sciences. The Essentials (Pages: 89, 90)** **Knowledge:** A25.1- List the bacterial and viral causes of diarrhea and define their morphological characteristics A25.2- State the mechanisms by which the organisms produce diarrhea A25.3- Memorize the characteristic clinical features of diarrhea produced by each organism. A25.4- Recall the important laboratory diagnosis and prevention of each organism **Intellectual:** B25.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing diarrhea	**Microbiology 3**	**1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8**
26	**Diarrhea II**	**Reference Book:** **Lecture notes** **Lippincott Illustrated Reviews: Integrated Systems pp 318-319** **First AID For the basic sciences: Organ Systems pp231 for Pseudomembranous colitis only.** **Integrated Medicinal Sciences. The Essentials (Pages: 89, 90)** **Knowledge:** A26.1- List the bacterial and viral causes of diarrhea and define their morphological characteristics A26.2- State the mechanisms by which the organisms produce diarrhea A26.3- Memorize the characteristic clinical features of diarrhea produced by each organism. A26.4- Recall the important laboratory diagnosis and prevention of each organism **Intellectual:** B26.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing diarrhea	**Microbiology 4**	**1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8**
27	**Exocrine pancreas, liver & biliary system**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 75-84, 86, 89-105.** **Knowledge:** A27.1- Describe the composition and functions of exocrine pancreas. A27.1- Describe the cellular mechanism of pancreatic secretion. A27.3- Describe control of pancreatic secretion. A27.4- Describe the effect of loss of pancreatic enzymes. A27.5- Know the functions of liver. A27.6- Name the composition, mechanism of formation, functions & control of bile secretion. A27.7- Know the functions of gall bladder. A27.8- Describe control of gall bladder evacuation. A279- Describe control of hepatic circulation. **Intellectual:** B27.1- Understand the pathological conditions of pancreatitis.	**Physiology 5**	**1.8 1.9 4.1 4.2 4.5 4.6 5.4 6.1- 6.4**

		B27.2- Understand the role of the liver in the digestive process and excretion of waste metabolites. B27.3- Understand the recycling of bile via enterohepatic circulation. B27.4- Interplay the bile secretion with clinical applications (jaundice).		
28	**Intestinal Secretions & Absorption**	**Reference book:** **The digestive system: Basic science and clinical conditions. Margert and Dion 2010, pp 112-122, 130-152.** **Knowledge:** A28.1- Name the composition and functions of intestinal secretion. A28.2- Describe control of intestinal secretion. A28.3- Name the constituents of large intestine secretion and their functions A28.4- State the basic principles of GIT absorption. A28.5- Explain absorption in small intestine. A28.6- Describe route and control of intestinal absorption. A28.7- Describe absorption in large intestine. **Intellectual:** B28.1- Interpret the pathophysiology of abnormal digestion of food in intestine. B28.2- Integrate normal absorption with insufficient nutrient absorption. B28.3- Explore the mechanism of diarrhea and its consequences.	**Physiology 6**	**1.8 1.9 4.1 4.2 4.5 4.6 5.4 6.1-6.4**
29	**Small intestinal parasites I**	**Reference book** **Lecture notes &** **Garcia, Lynne Shore, and David A. Bruckner. Diagnostic Medical Parasitology. New York: Elsevier, 2016.** **Knowledge:** For the following medically important parasites inhabiting small intestine; Heterophyes heterophyes, *Hymenolepis nana*, *Taenia saginata* & *T. solium* and *Ascaris lumbricoides*: A29.1- Recognize life cycle and the sources of parasitic infections. A29.2- Define and differentiate the infective and diagnostic stages of each parasite. A29.3 Describe clinical features and complications associated with these parasitic infections. A29.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis. A29.5- Define the principles of management for these parasitic diseases. **Intellectual:** B29.1- Interpret different clinical presentations and correlate them to suspected parasites. B29.2- Interpret similar stages of different parasites. B29.3- Interpret the most suitable diagnostic technique for each parasitic problem. B29.4-Interpret basic diagnostic features, general outline of prevention and control pathogenesis.	**Parasitology 1**	**1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8**

30	**Small intestinal parasites II**	**Reference book:** **Lecture notes & Garcia, Lynne Shore, and David A. Bruckner. Diagnostic Medical Parasitology.New York: Elsevier, 2016.** **Knowledge:** For the following medically important parasites inhabiting small intestine parasites; *Capillaria philippinensis, Strongyloides stercoralis, Cryptosporidium parvum, Ancylostoma duodenale &Giardia lamblia:* A30.1 - Recognize life cycle and the sources of parasitic infections. A30.2-Define and differentiate the infective and diagnostic stages of selected parasites. A30.3- Describe clinical features and complications associated with these parasitic infections. A30.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis of parasitic infections. A30.5- Define the principles of management for these parasitic diseases. **Intellectual:** B30.1- Interpret different clinical presentations and correlate them to suspected parasites. B30.2- Interpret similar stages of different parasites**.** B30.3- Interpret the most suitable diagnostic technique for each parasitic problem**.** B30.4-Interpret basic diagnostic features, general outlines of prevention and control pathogenesis. B30.5-Interpret life-threatening conditions	**Parasitology 2**	**1.6 1.8 1.10 1.16 2.4 2.5 2.6 4.5 4.6 4.8**
3rd Week Practical Sessions				
P9	**Anatomy of the liver & spleen**	C9.1- Identify the gross morphology of the liver, gall bladder and pancreas. C9.2- Identify the arrangement of liver, gall bladder, portal vein and pancreas on their normal places in cadavers. C9.3- Identify the surface anatomy of the liver, & fundus of gall bladder. C3- Identify the gross morphology of the spleen C9.4- Identify the surface anatomy of the spleen.	**Anatomy practical 4**	
P10	**Histology of the liver, gall bladder, biliary tract & pancreas**	C10.1- Identify and differentiate between the three regions of small intestine, colon and appendix. C10.2- Identify liver under microscopy with special reference to portal triad C10.3- Identify stained section of Gall bladder and pancreas.	**Histology practical 2**	
P11	**Stool examination**	C11.1- Identify common bacteria causing diarrhea (E coli, Salmonella, Shigella and Cholera) C11.2- Identify the tracing of the source of infections	**Microbiology practical**	

3rd Week Case Based Group Discussion				
GD 4	**1. A case of peptic ulcer** **2. A case of malabsorption** **3. A case of obstructive jaundice**	Compare between different parts of the GIT How can differentiate between villi and glands Explain the Liver organization How the structure of the liver adapts its functions	**Histology GD**	
GD 5	**1. Malabsorption syndrome** **2. Pancreatitis** **3. Gallstones**	Interpret the outcome of deficiency of the digestive enzymes Illustrate biochemical basis and outcome of: Malabsorption syndromes, Lactose intolerance, Steatorrhea & Pancreatitis. Explain the role of bile on digestion. Discuss the biochemical basis of gall bladder stones.	**Biochemistry GD 1**	
GD 6	**1. Case of jaundice.** **2. Case of diarrhea and constipation.**	Identify the metabolism of Bilirubin. Identify different causes of jaundice and difference between them. Identify the normal intestinal absorption. Identify the path-physiology of diarrhea and constipation.	**Physiology GD 2**	
GD 7	**1. Diarrhea**	List the main parasites causing diarrhea and demonstrate their morphological features**.** Explain the mode of transmission, clinical, parasitological course and complications of the parasites. Demonstrate the laboratory diagnosis and how to analyze results. List the prevention and treatment. To recognize the symptoms of parasitic diseases. To correlate the patient's history and symptoms to order laboratory procedures	**Parasitology GD 1**	
GD 8	**1. Mumps** **2. Helicobacter pylori** **3. Food poisoning** **4. Diarrhea**	Interpret the clinical pictures and laboratory test results to identify microorganisms causing viral diseases of the upper GIT and gastric ulcer disease Interpret the clinical pictures and laboratory test results to identify microorganisms causing food poisoning Interpret the clinical pictures and laboratory test results to identify microorganisms causing diarrhea	**Microbiology GD 1**	

GASTROINTESTINAL SYSTEM LECTURE TOPICS OUTLINES

Lecture title/topic NO		Learning objectives and content	Department	NARS
4th Week Lectures				
31	**Biochemical Basis of Xenobiotic Metabolism & Liver Disorders**	**Reference book:** **Lecture notes** **Oxford handbook of medical science 577,579, *582*** **First Aid USMLE 385** **Knowledge:** A31.1 Define the Xenobiotics & list their types A31.2 Describe the different phases of metabolism of Xenobiotic A31.3 Describe biochemical basis of alcohol metabolism **Intellectual:** B31.1 Illustrate biochemical mechanisms of Hepatic Encephalopathy B31.2 Discuss metabolic and biochemical basis of alcoholic and non- alcoholic liver disease (Fatty liver)	**Biochemistry 3**	**1.6 1.8 1.9 1.10 2.3 4.5 4.6 4.8**
32	**Biochemical Markers of Liver & GIT Disorders**	**Reference book:** **Lecture notes** **First Aid for basic science 222, 271-** **First Aid USMLE 384** **Knowledge:** A32.1 Describe the pattern of liver function tests in the diagnosis of liver diseases. A32.2 List biochemical markers of GIT diseases and their diagnostic **Intellectual:** B32.1 Interpret liver function test in acute and chronic liver conditions B32.2 Relate biochemical markers of GIT diseases to disease conditions	**Biochemistry 4**	**1.6 1.8 1.9 1.10 2.3 4.5 4.6 4.8**
33	**Drug-induced liver disease.**	**Reference book:** **Lippincott and illustrated reviews, pharmacology, 6th edition, 569-571** **Knowledge:** A33.1-List the various drugs causing different types of liver diseases A33.2- State chemotherapy of viral hepatitis **Intellectual:** B33.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regimen.	**Pharmacology 3**	**1.6 1.8 1.10 1.16 2.3 2.4 2.5 2.6 4.5 4.6 4.8**
34	**Viral Hepatitis**	**Reference Book:** **Lecture notes** **First Aid USML step 1, pp172, 174** **Lippincott Illustrated Reviews: Integrated Systems pp 326-328**	**Microbiology 5**	**1.6 1.8 1.10 1.16 2.4 2.5**

		Knowledge: A34.1- List the main viruses causing hepatitis and demonstrate their morphological features A34.2- Recall the mosquito transmitted virus causing hepatitis A34.3- Explain the mode of transmission, clinical, virologic course and complications of the viruses A34.4- Demonstrate the laboratory diagnosis and how to analyze results A34.5- List the prevention methods **Intellectual:** B34.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing hepatitis.		**2.6** **4.5** **4.6** **4.8**
35	**Typhoid fever and Peritonitis**	**Reference book:** **Lecture notes** **First AID For the basic sciences: Organ Systems pp 232 for typhoid fever** **First Aid USML step 1, pp 144 for typhoid** **First Aid USML step 1, p 384 for Peritonitis** **Knowledge:** A35.1- List the important causative microorganism causing typhoid fever and memorize them morphological characteristics A35.2- Demonstrate the epidemiology, pathogenesis and clinical pictures of typhoid fever A35.3- State the laboratory diagnosis of typhoid fever A35.4- List the prevention typhoid fever A35.5- State the chronic salmonella carriers A35.6- Recall the definition and classification of peritonitis A35.7- List the important causative microorganism causing peritonitis A35.8- State the laboratory diagnosis of peritonitis **Intellectual:** B35.1- Interpret the clinical pictures and laboratory test results to identify microorganisms causing peritonitis, intraperitoneal infections and typhoid fever	**Microbiology 6**	**1.6** **1.8** **1.10** **1.16** **2.4** **2.5** **2.6** **4.5** **4.6** **4.8**
36	**Large intestinal parasites and schistosomiasis**	**Reference book:** **Lecture notes & Garcia, Lynne Shore, and David A. Bruckner. Diagnostic Medical Parasitology. New York: Elsevier, 2016.** **Knowledge:** For the following medically important parasites inhabiting small intestine, *Enterobius vermicularis*, *Trichiuris trichiura*: *Entamoeba histolytica* A36.1- Recognize life cycle and the sources of parasitic infections. A36.2- Define and differentiate the infective and	**Parasitology 3**	**1.6** **1.8** **1.10** **1.16** **2.4** **2.5** **2.6** **4.5** **4.6** **4.8**

		diagnostic stages of selected parasites. A36.3- Describe clinical features and complications associated with these parasitic infections. A36.4- Describe the methods of recovery of parasites as well as different diagnostic techniques used for diagnosis of parasitic infections. A36.5- Describe *Schistosoma* life cycle, immune response, epidemiology, its pathogenesis and clinical manifestations. A36.6- Define *Entamoeba histolytica* & *Schistosoma mansoni* as parasitic causes of dysentery. **Intellectual:** B36.1- Interpret different clinical presentations and correlate them to suspected parasites. B36.2- Interpret basic diagnostic features, general outline of prevention and control of *Shistosoma mansoni*. B36.3- Interpret methods of diagnosis, symptomatology, prevention and control of *Enterobius vermicularis, Trichuris trichiura and E. histolytica* B36.4- Interpret and differentiate between Schistosomal & Amoeboc dysentery		
37	**Hepatobiliary parasites**	**Reference book:** **Lecture notes & Garcia, Lynne Shore, and David A. Bruckner. Diagnostic Medical Parasitology. New York: Elsevier, 2016.** **Knowledge:** A37.1- List the hepatobiliary parasites. A37.2-Recognize life cycle and sources of parasitic infection of *Fasciola* spp. A37.3- Define the epidemiology of Fascioliasis and Hydatid disease. A37.4- Describe clinical features and hepatic complications of Fascioliasis and Schistosomiasis A37.5- Describe extra-intestinal amoebiasis (Amoebic liver abscess). A37.6- List the sources of parasitic infection and the infective stages in Visceral larva migrans (V.L.M.) and cysticercosis. **Intellectual:** B37.1- Interpret different clinical presentations and correlate them to suspected parasites. B37.2- Interpret basic diagnostic features, general outline of treatment and prevention and control of hepatic flukes. B37.3- Interpret basic diagnostic features, pathogenesis, of hepatic Hydatid disease and Cysticercosis.	**Parasitology 4**	**1.6** **1.8** **1.10** **1.16** **2.4** **2.5** **2.6** **4.5** **4.6** **4.8**

38	**Anti-protozoal & Ant-helminthic Drugs**	**Reference book:** **Lippincott and illustrated reviews, pharmacology, 6th edition, 545-550/ 557/558/561-566** **Knowledge:** A38.1- Memorize chemotherapy of Amebiasis A38.2- Recall chemotherapy of Giardiasis A38.3- State chemotherapy of Antihelmenthic drugs. **Intellectual:** B38.1- Interpret the clinical picture and laboratory test results to choose the most appropriate therapeutic regimen.	**Pharmacology 4**	**1.6 1.8 1.10 1.16 2.3 2.4 2.5 2.6 4.5 4.6 4.8**
39	**Pathology of the liver**	**Reference book:** **Elsevier's Integrated Pathology (236-244)** **USMLE Step 1: Pathology (15-1: 15-20)** **Robbins and Cotran Pathologic Basis of Disease** **Knowledge:** A39.1- Define the term viral hepatitis and outline the main causes of acute viral hepatitis, mention its pathological features, course, fate and complications. A39.2- Define the term chronic hepatitis, outline its types and briefly describe the pathology of each type. A39.3- Discuss bilharzial hepatic fibrosis, mention its sequelea. A39.4- Define portal hypertension and mention its complications. A39.5- Define liver cirrhosis and list its classification, mention the etiology of each type and its pathological features A39.6- Classify tumors of the liver and give a brief account on hepatocellular carcinoma with emphasizes on risk factors, gross and microscopic picture, spread and prognosis. A39.7- Enumerate causes of liver enlargement. **Intellectual:** B39.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B39.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B39. 3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis.	**Pathology 5**	**1.5 1.6 1.7 1.8 1.9 1.10 2.4 3.1 3.2 4. 4.5 4.6 4.8 5.3 5.4 5.5 5.6 5.7 6.1 6.2 6.4 6.5 6.7**

40	**Pathology of the gall bladder, biliary tract, pancreas and peritoneum**	**Reference book:** **Elsevier's Integrated Pathology (236- 244), (244- 246)** **USMLE Step 1: Pathology (15-1: 15-20) (16-1: 16-5)** **Robbins and Cotran Pathologic Basis of Disease** **Knowledge:** A40.1- List causes and common types of gall stones. Briefly describe the complication A40.2- Describe the pathology and complications of acute and chronic cholecystitis A40.3- Describe the aetiology, pathology and sequelae of acute pancreatitis A40.4- Outline the presenting features and pathology of carcinoma of exocrine pancreas A40.5- Define ascites and enumerate its causes. **Intellectual:** B40.1- Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. B40.2- Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology B40.3- Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis.	**Pathology 6**	**1.5 1.6 1.7 1.8 1.9 1.10 2.4 3.1 3.2 4. 4.5 4.6 4.8 5.3 5.4 5.5 5.6 5.7 6.1 6.2 6.4 6.5 6.7**
4th Week Practical Sessions				
P 12	**Liver function test**	C12.1-List liver function tests. C12.2- Describe the importance of liver function tests in the diagnosis of liver diseases. C12.3- Explain the biochemical basis of liver function tests C12.4 Perform various liver function tests C12.5- Evaluate and interpret the laboratory reports of liver function test C12.6- Examine true paint data and correlate with clinical presentations.	**Biochemistry practical**	

P 13	**GIT Parasites identification**	C13.1-Identify and differentiate the microscopic morphology of ***H. heterophyes***, ***H. nana***, ***Taenia spp*** & ***A. lumbricoides*** eggs in slides. C13.2- Identify and differentiate between the microscopic morphology of gravid segments of **Taenia** species in slides. C13.3- Identify grossly the adults of ***Taenia*** sp, ***Ascaris*** in jars. C11.4-Identify the microscopic morphology of ***Anclystoma duodenale*** eggs in slides. C13.5- Identify and differentiate the microscopic morphology of ***Giardia lamblia*** trophozoite and cyst stages in slides. C13.6-Identify and differentiate the microscopic morphology of ***Enterobius vermicularis, Trichuris trichura*** eggs in slides. C13.7- Identify the microscopic morphology of ***Enterobius vermicularis*** adults in slides. C13.8-Identify and differentiate the microscopic morphology of ***Entamoeba histolytica*** trophozoite and cyst stages C13.9- Identify the microscopic morphology of ***Fasciola sp*** eggs. C13.10- Identify cross section in Hydatid cyst and microscopic features of hydatid sand C13.11-Identify the microscopic morphology of Adult ***Shistosoma mansoni***, and eggs in slides C13.12- Identify grossly Hydatid cyst in jars and the cysticercus stage in affect tissues (heart).	**Parasitology Practical**	
P 14	**Pathology of the liver, gall bladder, biliary tract, pancreas and peritoneum**	C14.1- Identify microscopic appearance of chronic hepatitis C14.2- Describe gross morphology and microscopic features of liver cirrhosis C14.3- Describe gross morphology of bilharzial hepatic fibrosis and differentiate between it and liver cirrhosis C14.4- Describe gross and microscopic features of hepatocellular carcinoma C14.5- Identify gross features of gall stones . C14.6- Identify gross feature of gall bladder carcinoma and differentiate it from cholecystitis	**Pathology practical 3**	
4th Week Case Based Group Discussion				
GD 9	**1. Liver dysfunction** **2. Jaundice**	Describe the pattern of liver function tests in the diagnosis of liver diseases. Interpret liver function test in acute and chronic liver conditions Define the hyperbilirubinemia Discuss the Bilirubin pathway Difference between direct and indirect bilirubin Enumerate the types of jaundice Describe the biochemical changes.	**Biochemistry GD 2**	

GD 10	**1. Peritonitis and intra -abdominal infections.** **2. Typhoid** **3. Viral Hepatitis**	Interpret the clinical pictures and laboratory test results to identify microorganisms causing peritonitis, intraperitoneal infections and typhoid fever Interpret the clinical pictures and laboratory test results to identify microorganisms causing hepatitis	**Microbiology GD 2**	
GD 11	**Hepatic parasites and hepatic space occupying lesions.**	List the main hepatobiliary parasites and demonstrate their morphological features Explain the mode of transmission, clinical, parasitological course and complications of the parasites. Demonstrate the laboratory diagnosis and how to analyze results. List the prevention and treatment. To recognize the symptoms of parasitic diseases. To correlate the patient's history and symptoms to order laboratory procedures.	**Parasitology GD 2**	
GD 12	**1. Drug-induced liver disease** **2. Hepatitis C** **3. Hepatitis B**	List the main drugs causing different types of liver diseases: List the main antiviral drugs for its treatment Discuss the different adverse effects of different antivirals List the main antiviral drugs for its treatment List the required investigations for the diagnosis Discuss the essential combinations of different antivirals.	**Pharmacology GD 2**	
GD 13	**1. Case study on intestinal obstruction** **2. Case study on hepatitis and liver cirrhosis** **3. Case study on hepatic focal lesion** **4. Case study on hepatomegaly**	Predict the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes. Interpret a pathology report and integrate gross and microscopic findings with the underlying etiology Utilize the obtained information to solve a problem in a case scenario to reach a provisional diagnosis.	**Pathology GD 2**	

GASTROINTESTINAL SYSTEM BLOCK BLUEPRINT

Lecture – Blueprint								
Lecture title/topic N^{O}		ILOs	Department	Contact hours	Weight	Total Marks	End of the block	Final exam
Lectures of first week								
1	Anterior abdominal wall, peritoneal cavity, and the peritoneum	A1.1-A1.4, B1.1-B1.3	Anatomy	2	3.1%	3	1	2
2	Development & congenital anomalies of gastro-intestinal System	A2.1- A2.4 B2.1	Anatomy	2	3.1%	3	-	3
3	Anatomy of oral cavity, salivary glands, oropharynx, esophagus& stomach	A3.1 A3.3 B3.1-B3. 3	Anatomy	2	3.1%	3	1	2
4	Histology of oral cavity and general plan of GIT and salivary glands	A4.1- A4.6 B4.1	Histology	2	3.1%	3	2	1
5	Function of digestive system, Control of GIT function, Chewing and Swallowing	A5.1-A5.5 B5.1- B5.5	Physiology	1	1.6%	1.5	1.5	
6	Histology of the stomach	A6.1- A6.3 B6.1- B6.3	Histology	1	1.6%	1.5	1	0.5
7	Physiology of The Mouth & esophagus	A7.1-A7.4 B7.1- B7.3	Physiology	1	1.6%	1.5	1.5	
8	Physiology Of The Stomach	A8.1-A8.5 B8.1- B8.3	Physiology	2	3.1%	3	3	
9	Pathology of the oral cavity, oropharynx, esophagus and salivary Glands	A9.1- A9.7 B9.1-B9. 3	Pathology	1	1.6%	1.5	1	0.5
10	Pathology of the Stomach	A10.1-A10.5 B10.1-B10.3	Pathology	1	1.6%	1.5	1	0.5
11	Drugs used in peptic ulcer disease and antiemetic drugs	A11.1-A11.6 B11.1	Pharmacology	2	3.1%	3	2	1
Lectures of second weeks								
12	Classification of infections of the GIT, Viral diseases of the upper digestive system, Helicobacter pylori and gastric ulcer Disease	A12.1-A12.5 B12.1	Microbiology	2	3.1%	3	3	-

13	Food poisoning	A13.1-A13.2 B13.1-	Microbiology	1	1.6%	1.5	1.5	-
14	Anatomy of the small intestine and large Intestine	A14.1A14.2 B14.1-B14.2	Anatomy	1	1.6%	1.5	1	0.5
15	Anatomy of the rectum, anal canal and Spleen	A15.1-A15.2 B15.1B15.2	Anatomy	1	1.6%	1.5	1	0.5
16	Histology of the Small and large intestine	A16.1-A16.3 B16.1-B16.4	Histology	1	1.6%	1.5	-	1.5
17	Intestinal motility and Defecation	A17.1-A17.4 B17.1	Physiology	2	3.1%	3	2	1
18	Drugs affecting gastrointestinalmotility Anti-diarrheal/ Laxatives /Spasmolytic drugs - Treatment of inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS)	A18.1-A18.4 B18.1	Pharmacology	2	3.1%	3	1	2
19	Pathology of the small intestine	A19.1A19.5 B19.1-B19.3	Pathology	2	3.1%	3	2	1
20	Pathology of the colon and rectum	A20.1-A20.7 B20.1-B20.3	Pathology	2	3.1%	3	1	2
21	Anatomy of the Liver, Biliary system and Pancreas	A21.1-A21.4 B21.1-	Anatomy	1	1.6%	1.5	0.5	1
22	Histology of the liver, gall bladder and pancreas	A22. -A22.5 B22.1-B22.3	Histology	2	3.1%	3	-	3
Lectures of the third week								
23	Biochemistry of Nutrient Digestion	A23.1-A23.3 B23.1-B23.4	Biochemistry	2	3.1%	3	3	--
24	Bilirubin Metabolism & Its Inborn Errors of Metabolism	A24.1A24.4 B24.1 B24.3	Biochemistry	2	3.1%	3	1	2
25	Diarrhea I	A25.1-A25.4 B25.1	Microbiology	1	1.6%	1.5	-	1.5
26	Diarrhea II	A26.1-A26.4 B26.1	Microbiology	1	1.6%	1.5	-	1.5

27	Exocrine pancreas, liver & biliary system	A27.1-A27.9 B27.1-B27.4	Physiology	2	3.1%	3	0	3
28	Intestinal Secretions & Absorption	A28.1-A28.7 B28.1-B28.3	Physiology	2	3.1%	3	0	3
29	Small intestinal parasites I	A29.1A29.5 B29.1-B29.4	Parasitology	1	1.6%	1.5	1.5	----
30	Small intestinal parasites II	A30.1-A30.5 B30.1-B30.5	Parasitology	1	1.6%	1.5	1.5	----
Lectures of the 4th week								
31	Biochemical Basis of Xenobiotic Metabolism & Liver Disorders	A31.1-A31.3 B31.1-B31.2	Biochemistry	2	3.1%	3	----	3
32	Biochemical Markers of Liver & GIT pathology	A32.1-A32.2 B32.1-B32.2	Biochemistry	2	3.1%	3	----	3
33	Drug-induced liver disease	A33.1-A33.2 B33.1	Pharmacology	1	1.6%	1.5	----	1.5
34	Viral Hepatitis	A34.1-A34.5 B34.1	Microbiology	2	3.1%	3	-------	3
35	Peritonitis and intra-abdominal infections Typhoid and paratyphoid	A35.1-A35.8 B35.1	Microbiology	2	3.1%	3	------	3
36	Large intestinal parasites and schistosomiasis	A36.1-A36.6 B36.1-B36.4	Parasitology	2	3.1%	3	------	3
37	Hepatobiliary parasites	A37.1-A37.6 B37.1-B37.3	Parasitology	2	3.1%	3	-------	3
38	Anti-protozoal & Ant-helminthic Drugs	A38.1-A38.3 B38.1	Pharmacology	1	1.6%	1.5	----	1.5
39	Pathology of the liver	A39.1 A39.7 B39.1-B39.3	Pathology	2	3.1%	3	-----	3
40	Pathology of the gall bladder, biliary tract, pancreas and peritoneum	A40.1-A40.5 B40.1-B40.3	Pathology	2	3.1%	3	-----	3
Total				64	100	96	32	64

GIT practical Blueprint دور اول					
Topic title/ NO		ILOs	Contact hours	Weight	Marks in practical exam
P 1	Anterior abdominal wall, peritoneal cavity, and the peritoneum Development & congenital anomalies of gastro-intestinal system	C1.1-C1.6	2		2
P 2	Anatomy of the oral cavity, salivary glands & stomach	C2.1- C2.4	2		2
P 3	Histology of the oral cavity, oropharynx, esophagus salivary glands, and stomach	C3.1- C3.3	2		2
P4	Pathology of the oral cavity, oropharynx, esophagus salivary glands, and stomach	C4.1- C4.3	2		2
P5	Physiology of Gastric motility	C5.1- C5.3	2		2
P6	Anatomy of the small intestine,	C6.1- C6.5	2		2
P7	Anatomy of large intestine, rectum & anal canal	C6.1- C6.5	2		2
P8	Histology of small and large intestine, appendix	C10.1	2		2
P9	Pathology of the small intestine, colon and rectum	C7.1-C7.4	2		
P10	Pharmacotherapy of acid peptic disorder	C8.1-C8.6	2		
P11	Esophageal Motility Disorder Gastroesophageal reflux disease (GERD) Reflux Esophagitis	C8.1-C8.6	2		
P12	Histology of the liver, gall bladder, biliary tract, & pancreas	C9.1- C9.4	2		2
P13	Anatomy of the liver & spleen	C10.1- C10.3	2		2
P14	GIT secretions	C11.1-C11.3	2		2.5
P15	Stool examination part 1	C11.1 C11.2	2		2
P16	Stool examination part 2	C11.1 C112	2		2.5
P17	Small intestinal parasites	C13.1-C13.5	2		2
P18	Liver function test	C12.1- C12.6	2		
P19	Large intestinal & hepatobiliary parasites	C13.6-C13.12	2		2.5
P20	Pathology of the liver, gall bladder, biliary tract, pancreas and peritoneum	C14.1- C14.6	2		

	part 1				
P21	Pathology of the liver, gall bladder, biliary tract, pancreas and peritoneum part 2	C14.1- C14.6	2		

GIT-211 BLUEPRINT

Credit points=10.5
Credit hours=158

Final	40%	64
Mid	20%	32
Practical	30%	47
Portfolio	10%	15

Lecture	Physiology	Pathology	Pharmacol	Anatomy	Histology	Microbiology	Biochemist	Parasitolog	Total
Hours	10	10	6	9	6	9	8	6	64
Total marks	15	15	9	13.5	9	13.5	12	9	96
midblock	8	5	3	4.5	3	4.5	4	-	32
Final	7	10	6	9	6	9	8	9	64
Final mcq	7	10	6	9	-	-	-	-	32
Final written	-	-	-	-	6	9	8	9	32
الدور الثانى									
Final mcq	15	15	4	13.5	--	--	--	--	47.5
Final written	--	--	5	--	9	13.5	12	9	48.5

Lectures

Subject	physiology	pathology	Pharma	anatomy	histology	micro	Bio	Para	total
Hours	10	10	6	9	6	9	8	6	64
Total marks	15	15	9	13.5	9	13.5	12	9	96
midblock	5	5	3	4.5	3	4.5	4	3	32
Final	10	10	6	9	6	9	8	6	64

Practical

دور اول

Subject	Physiology	Pathology	Pharma	Anatomy	Histology	micro	Biochemistry	Para	total
hours	4	8	4	10	6	4	2	4	42
marks	4.5	9	4.5	11	7	4.5	2	4.5	47

Practical

دور تاني

Subject	Physiology	Pathology	Pharma	Anatomy	Histology	micro	Biochemistry	Para	total
hours	4	8	4	10	6	4	2	4	42
marks	6	12	6	14.5	9	6	2.5	6	62