



Syllabus Master's Degree Course in Medicine and Surgery ***a.y. 2026 - 2027***

DISEASES OF THE GASTROENTERIC SYSTEM

Fourth year, first semester (9 academic credits [CFU])

Teachers

Subject	Academic credits (CFU)	Lecturer
Gastroenterology	3	BERTINO Gaetano
General surgery	2	GRUTTADAURIA Salvatore
Applied pharmacology	2	LEGGIO Gianmarco
Anatomopathology	1	SALVATORELLI Lucia
Applied diagnostics	1	BASILE Antonello

Learning outcomes

Subject	Learning outcomes
Gastroenterology	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge on the pathophysiological, preventive, and clinical aspects of major gastrointestinal diseases. • Understanding the etiopathogenesis of common gastrointestinal diseases and their appropriate diagnostic and therapeutic pathways. • Understand the principles of evidence-based medicine and diagnostic and therapeutic appropriateness in gastrointestinal diseases, including the ability to evaluate the risks, benefits, and costs of different clinical options. Applying knowledge and understanding By the end of the module, students are expected to: • Apply the acquired knowledge to taking a comprehensive medical history and performing a physical examination in patients with the main gastrointestinal diseases. • Apply the acquired knowledge to identify and interpret the main signs and symptoms of common gastrointestinal diseases and disorders affecting the digestive system. • Be able to perform a comprehensive physical examination of the patient.

	• Demonstrate the ability to exercise sound clinical judgment in establishing diagnoses and selecting appropriate treatments for individual patients with common gastrointestinal diseases. • Be able to implement appropriate therapeutic, preventive, and rehabilitative measures for individual patients with common gastrointestinal diseases. • Demonstrate the ability to identify and implement the principles of evidence-based medicine in the clinical management of patients with common gastrointestinal diseases. • Demonstrate the ability to assess the need for specialist consultation and to identify when referral to a gastroenterologist is appropriate, based on the specific clinical condition of the patient.
General surgery	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge on the pathophysiological, preventive, and clinical aspects of the surgical diseases of the gastrointestinal tract and the hepato-biliary and pancreatic systems. • Understanding the etiopathogenesis of common gastrointestinal surgical conditions and their appropriate diagnostic and therapeutic pathways. • Acquire knowledge on the basic principles of surgical techniques used in the management of main gastrointestinal diseases. • Understand indications of surgical or endovascular treatment of main gastrointestinal diseases. • Understand the principles of evidence-based medicine and diagnostic and therapeutic appropriateness in gastrointestinal surgical conditions, including the ability to evaluate the risks, benefits, and costs of different clinical options. • Understand common perioperative complications and principles of management. Applying knowledge and understanding By the end of the module, students are expected to: • Apply the acquired knowledge to taking a comprehensive medical history and performing a physical examination in patients with the main gastrointestinal diseases requiring surgical treatment. • Apply the acquired knowledge to identify and interpret the main signs and symptoms of common gastrointestinal surgical conditions and disorders affecting the digestive system. • Be able to perform a comprehensive physical examination of the patient. • Demonstrate the ability to exercise sound clinical judgment in establishing diagnoses and selecting appropriate treatments for individual patients with common gastrointestinal diseases requiring surgery. • Be able to implement appropriate therapeutic, preventive, and rehabilitative measures for individual patients with gastrointestinal surgical conditions. • Demonstrate the ability to identify and implement the principles of evidence-based medicine in the clinical management of patients with common gastrointestinal diseases requiring surgery.

	• Demonstrate the ability to assess the need for specialist consultation and to identify when referral to a surgeon is appropriate, based on the specific clinical condition of the patient.
Applied pharmacology	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge on the different classes of drugs, their molecular and cellular mechanisms of action, and the fundamental principles of pharmacodynamics and pharmacokinetics relevant to drug therapy for gastrointestinal diseases. • Acquire knowledge on the different classes of drugs used in the management of gastrointestinal diseases, including their molecular and cellular mechanisms of action and their specific effects on different physiological functions. • Understanding the correlation of the principles of drug action with their therapeutic indications in gastrointestinal diseases, with particular attention to sex/gender differences and population-specific characteristics. • Understanding the fundamental principles underlying variability in drug response in relation to sex/gender, genetic, and pathophysiological factors, as well as drug interactions and criteria for establishing appropriate therapeutic regimens in patients with gastrointestinal diseases. • Understanding the fundamental principles and methods of clinical pharmacology relevant to the management of gastrointestinal diseases Applying knowledge and understanding By the end of the module, students are expected to: • Be able to analyze adverse events and individualized treatment strategies based on clinical context. • Apply the acquired knowledge to prescribe appropriate pharmacological therapy for patients with gastrointestinal diseases, taking into account pharmacodynamic and pharmacokinetic properties, variability in drug response related to sex/gender, genetic and pathophysiological factors, and potential drug interactions.
Anatomopathology	Knowledge and understanding By the end of the module, students are expected to: • Acquire knowledge on the histopathological hallmarks of common gastrointestinal disorders. • Acquire knowledge on the methods used in histopathological assessment of gastrointestinal diseases and of the role of the pathologist in the clinical decision-making process • Understand the basis of disease mechanisms and progression from a tissue perspective. Applying knowledge and understanding By the end of the module, students are expected to: • Be able to integrate molecular, morphological, immunological, and histopathological knowledge and apply it to the understanding of the pathogenesis, diagnosis, and underlying pathophysiological mechanisms of gastrointestinal diseases

Applied diagnostics	Knowledge and understanding By the end of the module, students are expected to: • Understanding the appropriate diagnostic pathway of main gastrointestinal diseases. • Acquire knowledge on key imaging modalities used in the evaluation of gastrointestinal diseases. • Understanding the indications, strengths, and limitations of common radiological techniques.
	Applying knowledge and understanding By the end of the module, students are expected to: • Be able to correlate pathophysiological knowledge with the patient's signs and symptoms and the results of diagnostic investigations, to formulate appropriate diagnostic hypotheses for gastrointestinal diseases.

Prerequisites

Subject	Prerequisites
Gastroenterology	Attainment of the educational objectives set by prerequisite courses.
General surgery	
Applied pharmacology	
Anatomopathology	
Applied diagnostics	

Course contents

Subject	Course contents
Gastroenterology	• Laboratory assessment in gastrointestinal and hepatobiliary diseases: liver function tests, pancreatic enzymes, inflammatory markers, serological tests, fecal biomarkers, and selected tumor markers. • Gastroesophageal reflux disease (GERD) and hiatal hernia. • Helicobacter pylori-related diseases. • Acute and chronic gastritis. • Drug-induced gastropathies. • Peptic ulcer disease. • Celiac disease and malabsorption syndromes. • Chronic infectious and endocrine-related diarrhea. • Constipation. • Irritable bowel syndrome. • Inflammatory bowel diseases, including Crohn's disease and ulcerative colitis, and their complications. • Colonic diverticular disease. • Hereditary hyperbilirubinemias. • Acute viral hepatitis and acute liver failure. • Chronic viral hepatitis. • Steatotic Liver Disease (SLD); Metabolic-associated steatotic disease (MASLD), Steatohepatitis (MASH) • Alcohol-related liver disease (ALD) and Drug-Induced Liver Injury (DILI)

	• Autoimmune liver diseases, including autoimmune hepatitis, primary biliary cholangitis, and primary sclerosing cholangitis. • Wilson disease. • Hereditary hemochromatosis and secondary hepatic siderosis. • Liver cirrhosis and its complications. • Pharmacological management of hepatobiliary diseases. • Acute and chronic pancreatitis. • Causes of gastrointestinal bleeding. Supplementary activities • Interactive lectures on gastrointestinal endoscopic techniques: esophagogastroduodenoscopy (EGD) and colonoscopy; indications, basic interpretation of endoscopic findings, and role of endoscopic biopsy. • Interactive lecture on therapeutic endoscopy in hepatobiliary diseases: endoscopic sphincterotomy, stone extraction, biliary and pancreatic stenting, management of biliary strictures and leaks, and endoscopic treatment of esophageal and gastric variceal bleeding.
General surgery	• Liver: anatomy and functional evaluation; cyst and benign neoplasm; primary and secondary tumors of the liver; end-stage liver disease; portal hypertension; liver transplantation. • Biliary tree and peri-ampullary region: anatomy and functional evaluation; calculous biliary disease and iatrogenic lesion of the bile duct; biliary neoplasm. • Pancreas: anatomy and functional evaluation; neoplasm of the exocrine and endocrine pancreas; cystic neoplasm. • Stomach: gastric neoplasm. • Colon and rectum: colorectal cancer.
Applied pharmacology	• General principles of gastrointestinal pharmacology: principles of pharmacokinetics and pharmacodynamics relevant to drugs used in gastrointestinal diseases; mechanisms of action, therapeutic indications, adverse drug reactions, contraindications, and drug–drug interactions; factors influencing variability in drug response, including sex/gender, genetic, physiological, and pathophysiological factors. • Drugs used in acid-related disorders: proton pump inhibitors; histamine H₂-receptor antagonists; antacids and mucosal protective agents; prostaglandin analogues. • Drugs affecting gastrointestinal motility and functional gastrointestinal disorders: prokinetic agents; antispasmodic drugs. • Antiemetic drugs: dopamine receptor antagonists; serotonin 5-HT₃ receptor antagonists; neurokinin-1 receptor antagonists and other antiemetic agents. • Drugs used for constipation and diarrhoea: bulk-forming, osmotic, stimulant, and other laxatives; antidiarrhoeal and antisecretory agents; bile acid sequestrants in selected clinical conditions. • Pharmacological treatment of inflammatory bowel diseases: aminosalicylates; corticosteroids; immunomodulatory drugs; biological therapies; targeted synthetic therapies and small-molecule drugs. • Drugs used in gastrointestinal infections: principles of antimicrobial therapy in gastrointestinal diseases; pharmacological treatment and eradication strategies for <i>Helicobacter pylori</i> infection.

	• Pharmacological management of pancreatic diseases: pancreatic enzyme replacement therapy; pharmacological principles relevant to the management of pancreatic diseases and their complications. • Pharmacological treatment of gastrointestinal neoplastic diseases: general principles of antineoplastic pharmacotherapy; chemotherapy; molecularly targeted therapies; immunotherapeutic approaches.
Anatomopathology	• Histopathology of esophageal diseases: reflux esophagitis, Barrett's esophagus, and esophageal carcinoma. • Histopathology of gastric diseases: acute and chronic gastritis, Helicobacter pylori-associated gastritis, peptic ulcer disease, and gastric carcinoma. • Histopathology of intestinal diseases: celiac disease, inflammatory bowel disease (Crohn's disease and ulcerative colitis), and colorectal carcinoma. • Histopathology of liver diseases: steatosis and steatohepatitis, acute and chronic hepatitis, autoimmune liver diseases, cirrhosis, and hepatocellular carcinoma. • Histopathology of pancreatic diseases: acute and chronic pancreatitis, pancreatic intraepithelial neoplasia, and pancreatic ductal adenocarcinoma. • Morphological features and pathological classification of gastrointestinal neoplasms: principles of grading, staging, and assessment of prognostic and predictive histopathological features. • Basic principles of histopathology, immunohistochemistry, and molecular pathology applied to the diagnosis and classification of gastrointestinal diseases and tumors.
Applied diagnostics	• Basic principles of gastrointestinal imaging: plain X-ray, ultrasound, computed tomography (CT), magnetic resonance imaging (MRI), and contrast-enhanced imaging techniques. • Abdominal ultrasound: basic principles and evaluation of the liver, biliary tract, pancreas, spleen, and abdominal vessels; identification of common pathological findings. • CT imaging of gastrointestinal diseases: evaluation of the esophagus, stomach, small and large bowel, liver, biliary tract, and pancreas; CT in acute abdominal conditions. • MRI and magnetic resonance cholangiopancreatography (MRCP): evaluation of liver, biliary tract, and pancreatic diseases; basic principles and clinical indications. • Advanced diagnostic techniques: main indications and diagnostic applications of CT colonography (virtual colonoscopy). • Interventional radiology in hepatobiliary diseases: percutaneous transhepatic cholangiography (PTC), percutaneous biliary drainage, and biliary stenting. • Interventional procedures for gastrointestinal bleeding treatment. • Functional and molecular imaging: basic principles and selected applications of hepatobiliary scintigraphy and positron emission tomography/computed tomography (PET/CT) in gastrointestinal, hepatobiliary, and pancreatic diseases.

Assessment methods

Subject	Assessment methods
Gastroenterology	The final assessment of acquired knowledge is conducted by an oral exam. The grade is expressed on a scale of thirty, up to a maximum of 30/30 cum laude (with honors). The final score is a single grade for the entire Integrated Course. The examination board consists of all teachers of the modules that make up the Integrated Course. Students will not receive individual grades or evaluations for the single modules; instead, they will receive one final grade reflecting their overall performance in the Integrated Course.
General surgery	The oral examination consists of an interview and clinical case discussions, during which questions will cover at least two different topics from each module of the course. The assessments aim to evaluate: i) the level of knowledge on the gastrointestinal disease (knowledge and understanding); ii) the ability to apply the acquired knowledge to prevent, assess, recognize and manage, gastrointestinal diseases, and to establish an appropriate diagnostic and therapeutic pathway (applying knowledge and understanding); iii) the ability to apply the acquired knowledge to critically analyze clinical cases and to independently establish an appropriate diagnostic and therapeutic pathway for patients with gastrointestinal diseases (making judgements); iv) clarity of expression (communication skills); v) the ability to critically appraise the scientific evidence relevant to gastrointestinal diseases (learning skills). The assessment of learning can also be conducted remotely if the conditions necessitate it.
Applied pharmacology	For the assignment of the final grade, the following parameters will be considered: Score 29-30 with honors: The student demonstrates an in-depth knowledge of the topics, promptly and correctly integrates and critically analyzes presented situations, independently solving even highly complex problems. They possess excellent communication skills and command medical-scientific language proficiently.
Anatomopathology	Score 26-28: The student has a good understanding of the topics, is able to integrate and critically and logically analyze presented situations, can fairly independently solve complex problems, and presents topics clearly using appropriate medical-scientific language.
Applied diagnostics	- Score 22-25: The student has a fair understanding of the topics, although it may be limited to the main areas. They can integrate and critically analyze presented situations, although not always in a linear fashion, and present topics fairly clearly with moderate language proficiency. - Score 18-21: The student has minimal knowledge of the topics, possesses modest ability to integrate and critically analyze presented situations, and presents topics sufficiently clearly, although their language proficiency may be underdeveloped. - Exam not passed: The student lacks the minimum required knowledge of the core content of the course. Their ability to use specific language is minimal or nonexistent, and they are unable to independently apply acquired knowledge.

Examples of common questions and/or exercises

Subject	Examples of common questions and/or exercises
Gastroenterology	• Describe the pathophysiology, clinical manifestations, and diagnostic approach to gastroesophageal reflux disease. • Discuss lifestyle measures and non-pharmacological treatment of GERD. Outline the main pharmacological treatment options and their indications. • Describe the main features of acute and chronic gastritis and drug-induced gastropathy. • Describe the main causes, pathophysiological mechanisms, clinical manifestations, and complications of peptic ulcer disease. • A patient presents with bloating, chronic diarrhea, and weight loss. How would you approach the diagnostic evaluation, and when would you suspect celiac disease? • Discuss the main causes and diagnostic approach to chronic infectious diarrhea. • Describe the clinical features and diagnostic criteria of irritable bowel syndrome and discuss its differential diagnosis. • Compare Crohn's disease and ulcerative colitis in terms of clinical presentation, anatomical distribution, pathological features, and complications. • Describe the pathophysiology, clinical manifestations, and complications of colonic diverticular disease. • Describe the main biochemical tests used to assess liver function and hepatobiliary injury. • A patient presents with elevated ALT, AST, alkaline phosphatase, and bilirubin. Describe how you would approach the interpretation of these abnormalities and the differential diagnosis. • Describe the main hereditary disorders of bilirubin metabolism and their clinical manifestations. • Describe the clinical presentation, diagnostic approach, and natural history of acute viral hepatitis. • Define acute liver failure and describe its main causes, clinical manifestations, complications, and principles of management. • Describe the natural history, clinical manifestations, and complications of chronic hepatitis B and hepatitis C. • Describe the pathophysiology, clinical features, diagnosis, and natural history of metabolic dysfunction-associated steatotic liver disease (MASLD). • Discuss the principles of management of MASLD and MASH. • What is drug-induced liver injury (DILI)? Describe its main patterns of presentation, diagnostic approach, and management. • Compare autoimmune hepatitis, primary biliary cholangitis, and primary sclerosing cholangitis in terms of clinical presentation, laboratory findings, diagnosis, and treatment. • A young patient presents with unexplained liver disease and neurological symptoms. How would you evaluate the possibility of Wilson's disease? • Discuss the major complications of cirrhosis. • Describe the main causes, clinical presentation, diagnostic criteria, and complications of acute pancreatitis. • Compare the main causes, clinical presentation, diagnostic evaluation, and management of upper and lower gastrointestinal bleeding.

General surgery	• What are the main diagnostic criteria for hepatocellular carcinoma in patients with liver cirrhosis? • What are the main factors determining the resectability of pancreatic ductal adenocarcinoma? • What are the main indications for biliary drainage in patients with obstructive jaundice? • Which patients with hepatocellular carcinoma may be eligible for liver transplantation? • What are the main clinical and imaging features used to assess the risk of malignancy in pancreatic cystic neoplasms? • What is the recommended treatment for acute cholecystitis complicated by gallbladder perforation? • What are the main principles of surgical treatment for colorectal cancer? • What are the main differences between perihilar and intrahepatic cholangiocarcinoma in terms of diagnosis and surgical management? • Which factors determine whether colorectal liver metastases are suitable for surgical resection?
Applied pharmacology	• Which drug class is commonly used to induce remission in moderate-to-severe inflammatory bowel disease by targeting specific inflammatory pathways? • Which combination of drugs is commonly used for the eradication of <i>Helicobacter pylori</i> infection? • What is the mechanism of action of serotonin 5-HT₃ receptor antagonists in the prevention and treatment of nausea and vomiting?
Anatomopathology	• What are the morphological features of inflammatory bowel disease? • How are hepatic tumors classified histologically, and what are the criteria for malignancy?
Applied diagnostics	• Which imaging modality is preferred for evaluating suspected common bile duct stones? • What are the main indications for CT in acute abdominal conditions? • When is CT colonography used for the evaluation of the colon? • What are the main indications for percutaneous transhepatic biliary drainage?

Reference texts

Subject	Textbooks
Gastroenterology	• DIGESTIVE DISEASES, UNIGASTRO, Editrice Gastroenterologica Italiana, latest edition. • Scientific Articles and Guidelines on PUBMED Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
General surgery	• Surgery - Greenfield's Scientific Principles & Practice • Scientific Articles by Gruttadauria S. on PUBMED Educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Applied pharmacology	• Katsung's Basic and Clinical Pharmacology, 16th edition, McGraw Hill

	Goodman and Gilman's. The pharmacological basis of therapeutics, McGraw Hill Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Anatomopathology	Educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Applied diagnostics	Herring W. Learning Radiology. Elsevier Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.

Course format

Subject	Course format
Gastroenterology	Teaching will be primarily delivered through in-person lectures, combining theoretical instruction with practical exercises. If teaching is conducted in blended or remote mode, appropriate adjustments will be made to ensure alignment with the objectives and content outlined in the Syllabus.
General surgery	
Applied pharmacology	
Anatomopathology	
Applied diagnostics	

Attendance

Subject	Attendance
Gastroenterology	Mandatory attendance.
General surgery	
Applied pharmacology	
Anatomopathology	
Applied diagnostics	

Course schedule

Subject	Course schedule
Gastroenterology	Students may refer to the recommended textbooks to identify the correspondence between the topics covered in the syllabus and the relevant chapters.
General surgery	
Applied pharmacology	
Anatomopathology	
Applied diagnostics	