



UNICAMILLUS

Master's Degree Program in Medicine and Surgery

Integrated Course: **Systematic Pathology II**

Number of ECTS: **12**

SDS: MEDS-10/A, MEDS-08/A, MEDS-08/B, MEDS-14/C, MEDS-08/C

Reference Professor: **Prof. [Salvatore Maria Corsello](#)**

Module: Gastroenterology

SDS: MEDS-10/A (ex MED/12)

ECTS: 2

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Module: Endocrinology

SDS: MEDS-08/A (ex MED/13)

ECTS: 3

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Module: Nephrology

SDS: MEDS-08/B (ex MED/14)

ECTS: 2

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Module: Urology

SDS: MEDS-14/C (ex MED/24)

ECTS: 3

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Module: Applied Dietary Technical Sciences

SDS: MEDS-08/C (ex MED/49)

ECTS: 2

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PREREQUISITES

Students must have acquired a good knowledge of embryonic development, as well as the microscopic and macroscopic structures (anatomy and histology) of the digestive tract, liver, genitourinary system, and endocrine system. Furthermore, they must possess fundamental knowledge of physiology and human anatomy and be able to recognize any related pathophysiological clinical conditions

LEARNING OBJECTIVES

The integrated course of Systematic Pathology II aims to provide students with the necessary skills to understand the pathophysiological mechanisms, clinical presentation, diagnostic strategies, and therapeutic options of the main diseases in the following fields: gastroenterology, endocrinology,



urology, nephrology, and dietetic sciences.

Through an integrated approach, the course aims to develop the ability to link theoretical knowledge with clinical practice, fostering critical thinking and independent decision-making in the study of diseases, with the goal of preparing students for medical practice.

The teaching of *Gastroenterology* is aimed to provide the possibility to systematically learn pathologic and physio-pathologic bases of most prevalent diseases of the digestive tract, the liver and pancreas. Students would move through symptoms and exams according to appropriate diagnostic and therapeutic algorithms for differential diagnosis.

The teaching of *Endocrinology* aims to provide knowledge of the physiology and pathophysiology of the endocrine system and metabolism through the analysis of the causes and main endocrine disorders. At the end of the course, students will be able to understand the clinical presentation of various endocrine disorders, the diagnostic tools used to confirm the diagnosis, and the medical and/or surgical therapies applicable in different clinical scenarios.

The course of *Nephrology* aims to provide the student with the essential elements for general theoretical and practical knowledge of the main primary and secondary diseases and syndromes involving the kidneys and excretory tracts. The aim is to provide: 1) a correct methodological and notional approach; 2) a characterization of the pathogenesis and the histological-morphological picture; 3) the acquisition of clinical pictures and knowledge of prevention, differential diagnostics, clinical course, decision making and possible complications. At the end of the lessons the student will know the basic notions of the main renal pathologies in their acute phase and the biochemical, instrumental and clinical investigations necessary for their diagnosis and therapy. The scheduled internships and monothematic elective courses will provide the theoretical-practical basis for recognizing the type of pathology by evaluating the symptoms, clinical signs, laboratory and instrumental tests.

The course of *Urology* is aimed to provide knowledges regarding pathological features of the genitourinary system. The student will be able to discriminate between the main signs and symptoms in order to identify a correct diagnostic procedure, to set the elements for a differential diagnosis. It will also be necessary to know the current therapeutic protocols. At the end of the course the student must be able to: provide the main notions of anatomy, physiology and pathophysiology of the urinary and male genital tract; develop diagnostic and therapeutic planning, referring to scientific evidence.

The teaching of *Technical Dietetic Sciences* will provide the student with the techniques and methods of nutritional semiotics for the evaluation of nutritional status, aimed at predicting the risk of pathologies. At the end of the course, the student will have to know the basics of correct nutrition and know how to apply diet therapy programs in different clinical conditions (physiological and pathological).

The teaching will be supported by clinical cases and interactive discussions, promoting active learning and its application to professional practice.

LEARNING OUTCOMES

Knowledge and understanding

At the end of the course, the student will be able to manage the diagnosis and treatment of major gastrointestinal, endocrine, metabolic, renal, and urological diseases, while also applying principles of artificial nutrition and diet therapy for the prevention and treatment of diseases.

In particular, by the end of the course, the student should be able to:

- Identify the main signs and symptoms of gastroenterological disorders
- Classify symptoms according to relevance and severity
- Propose a diagnostic and therapeutic algorithm of principal gastroenterological diseases according to clinical and pathophysiological elements.
- Propose medical and interventional approaches for digestive diseases
- Understand the pathophysiological bases of the main diseases of the endocrine system and



metabolism

- Understand the clinical presentation, diagnosis and differential diagnosis of the main endocrinological diseases
- Understand the principles of medical and surgical therapy for major endocrine and metabolic disorders
- Identify the main signs and symptoms of renal disorders and understand symptoms according to relevance and severity
- Set up a diagnostic flow chart to reach a correct diagnosis by connecting clinical and pathophysiological elements
- Knowledge of medical and interventional approaches for renal diseases
- Provide the main notions of anatomy, physiology and pathophysiology of the urinary and male genital tract
- Develop diagnostic reasoning and therapeutic planning, referring to scientific evidence
- Know the main notions of anatomy, physiology and pathophysiology of the urinary and male genital tract
- Know and discriminate between the main urological symptoms
- Know how to recognize the main urological and male genital pathologies
- Propose a symptom-based diagnostic flow chart in order to reach a diagnostic hypothesis
- Know the main urological surgical procedures
- Know the devices commonly used in urological patients (urostomies, catheters, drainage, etc...)
- Know the nutritional risk indicators predictive of pathologies, the metabolic processes involving nutrients and the role of diet in the prevention of several pathologies
- Know the principles of artificial nutrition, nutrigenetics and nutrigenomics and precision nutrition
- Know how to apply specific diet therapy programs in different clinical settings
- Use the appropriate terminology and know specifically the topics present in the program and covered during the lessons

Ability to apply knowledge and understanding

The aim of the Integrated Course of Systematic Pathology II is to develop analytical and methodological skills. For each individual teaching module, students must understand the principles of evidence-based medicine, relate them to specific clinical situations, and be able to recognize cases with atypical presentations, proposing appropriate diagnostic procedures and therapies for each. Additionally, students must enhance their learning abilities by integrating information from textbooks with evidence from scientific publications, enabling them to consolidate and expand their knowledge independently

Communication skills

The integrated teaching promotes communication skills to enhance students' ability to argue effectively and with expressive precision. These skills will be specifically developed through teacher-student interactions in various scenarios. Students must acquire adequate technical-scientific vocabulary, including universally accepted diagnostic and prognostic scores. Furthermore, they must develop communication skills with patients, from medical history collection to conveying diagnosis, prognosis, and related therapy

Autonomy of judgment

At the end of the course, students will have acquired the fundamental knowledge related to the most important pathologies covered in the modules of the integrated course. They will be able to follow a logical process to critically analyze information obtained from the patient and differentiate between diagnostic possibilities, even in cases of rare diseases.



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Additionally, students will have developed the ability to integrate scientific knowledge and apply it to specific clinical situations, enabling them to formulate appropriate assessments that guide the diagnostic and therapeutic decision-making process

Learning ability

The student will have acquired learning skills and methods suitable for deepening and improving their knowledge in the subjects of the integrated course, also through the consultation of scientific literature.

STUDY COURSE PROGRAM

Gastroenterology

- The Esophagus: Principles of anatomy, physiology, and pathophysiology
- Gastroesophageal reflux disease (GERD): Its various phenotypic presentations, complications, diagnostic methods, and treatment principles
- Primary and secondary motility disorders of the esophagus
- Reflux esophagitis, eosinophilic esophagitis, and infectious esophagitis
- Esophageal cancer: Squamous cell carcinoma, Barrett's esophagus, and adenocarcinoma
- H. pylori infection and its complications
- Gastric and duodenal ulcer disease: Different patterns of gastritis
- Gastric cancer: Histological subtypes, role of environmental and genetic factors
- Non-variceal upper gastrointestinal bleeding
- Clinical, diagnostic, and prognostic approach to upper gastrointestinal bleeding
- Common and uncommon causes of upper gastrointestinal bleeding (ulcers, Mallory-Weiss syndrome, angiodysplasias, GAVE, Dieulafoy's lesion, Kaposi's sarcoma, non-Hodgkin lymphoma, hemobilia)
- Malabsorption syndromes: Celiac disease and its complications
- Chronic diarrhea: Diagnostic and therapeutic approach
- Abdominal pain: Differential diagnosis between organic and functional causes (dyspepsia, irritable bowel syndrome, functional constipation)
- Inflammatory bowel disease (IBD): Ulcerative colitis and Crohn's disease
- Colonic lesions, polypoid and non-polypoid: Sporadic colorectal cancer and major familial syndromes, role of genetics, and therapeutic approaches including biologics
- Biliary secretion physiology and pathophysiology: Gallstone disease and its complications
- Acute and chronic pancreatitis: IgG4-related autoimmune digestive diseases
- The Liver: Basic concepts of functional anatomy
- Hepatitis: Viral, autoimmune, and drug-induced—histology, diagnostic patterns, transmission routes, clinical presentation, prognosis, and therapy for chronic liver diseases
- Acute hepatitis and acute liver failure: Severity classifications and transplant evaluation
- Indications for liver transplantation in acute and chronic settings
- Liver cirrhosis: Definition, major complications, and pathophysiology of portal hypertension
- Hepatic encephalopathy: Classification, pathophysiology, and treatment
- Esophageal and gastric varices: Portal hypertensive gastropathy, pathophysiology, variceal bleeding, and treatment in different settings (acute, primary, and secondary prophylaxis)
- Ascites and hepatic hydrothorax: Pathophysiology, classification, and treatment
- Spontaneous bacterial peritonitis and principles of diagnosis and treatment of hepatorenal syndrome
- Respiratory syndromes of hepatic origin: Hepatopulmonary and portopulmonary syndromes
- Hepatocellular carcinoma: Epidemiology, pathophysiology, anatomy, and treatment protocols according to BCLC guidelines



- Common cholestatic liver diseases: Primary biliary cholangitis and primary sclerosing cholangitis, introduction to cholangiocarcinoma (classification and treatment)
- Common metabolic liver diseases: NAFLD, Wilson's disease, and hemochromatosis

Endocrinology

- Brief overview of endocrine system physiology; hormones and hormone receptors; transport proteins; main pathophysiological mechanisms of endocrine diseases.
- Hypothalamic-pituitary axis and target glands
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of the main hypothalamic-pituitary diseases: pituitary adenomas, acromegaly/gigantism, hyperprolactinemia, hypopituitarism, diabetes insipidus
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of the main thyroid diseases: thyroiditis, hypothyroidism, hyperthyroidism, thyroid nodule, thyroid carcinoma
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of the main adrenal diseases: hypoadrenalism, Cushing's syndrome, hyperaldosteronism, pheochromocytoma, adrenal masses
- Classification, clinical presentation, diagnosis, and treatment of hyperandrogenism
- Physiology of the endocrine pancreas and pancreatic hormones
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of the main types of diabetes mellitus: type 1 diabetes mellitus, type 2 diabetes mellitus, gestational diabetes mellitus, and basic principles of other types of diabetes mellitus (including pancreatogenic diabetes mellitus, monogenic diabetes mellitus, iatrogenic diabetes mellitus)
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of acute and chronic complications of diabetes mellitus
- Classification, pathophysiology, clinical presentation, diagnosis and therapy of hypoglycemic disorders
- Pathophysiology, clinical presentation, diagnosis and therapy of obesity, overweight, dyslipidemia, and metabolic syndrome
- Physiology of calcium-phosphorus metabolism; pathophysiology, clinical presentation, diagnosis and therapy of parathyroid disorders, hyperparathyroidism, hypoparathyroidism, osteomalacia and osteoporosis

Nephrology

- Nosography of Nephropathies
- Nephrological Semiology
- Disorders of Acid-Base and Electrolyte Balance
- Overview of Glomerular Nephropathies: Classification of glomerular nephropathies; pathogenetic mechanisms of glomerular disease
- Nephrotic Syndrome: Minimal change disease; focal segmental glomerulosclerosis; membranous glomerulonephritis
- Nephritic Syndrome: Post-streptococcal glomerulonephritis; IgA nephropathy (Berger's disease)
- Other Glomerular Nephropathies: Membranoproliferative glomerulonephritis; rapidly progressive glomerulonephritis
- Secondary Glomerular Nephropathies: Lupus nephritis; diabetic nephropathy; glomerular disease in cryoglobulinemia; kidney involvement in multiple myeloma; glomerular nephropathy in amyloidosis
- Vasculitides: Polyarteritis nodosa; ANCA-associated vasculitides; immune complex vasculitis
- Thrombotic Microangiopathies and Atheroembolic Nephropathy: Hemolytic-uremic syndrome and thrombotic thrombocytopenic purpura (TTP); atheroembolic nephropathy



- Acute Kidney Injury (AKI) I: Prerenal, intrinsic, and postrenal forms
- Renal Replacement Therapy for Acute Kidney Injury
- Hereditary Nephropathies I: Autosomal dominant polycystic kidney disease (ADPKD); nephronophthisis and medullary cystic kidney disease
- Hereditary Nephropathies II: Alport syndrome; Fabry disease
- Tubulointerstitial Nephropathies: Acute pyelonephritis; chronic pyelonephritis; immunoallergic forms; analgesic nephropathy
- Kidney and Pregnancy
- Kidney and Hypertension I: Ischemic nephropathy; renovascular hypertension
- Chronic Kidney Disease (CKD): Definition and staging; progression of renal failure
- Chronic Kidney Disease: Nutritional therapy in CKD; calcium-phosphorus balance disorders; erythropoiesis alterations
- Renal Replacement Therapies in End-Stage Renal Disease: Hemodialysis, peritoneal dialysis
- Evaluation of Kidney Transplant Candidates
- Kidney Transplantation in All Its Modalities: Deceased donor, living donor, paired donation, combined transplants
- Clinical Issues in the Short-, Medium-, and Long-Term Post-Transplant Period

Urology

- Basics of Anatomy and Physiology of the Urinary and Male Genital System
- Basics of Semiology of the Urinary and Male Genital System
- Complicated and Uncomplicated Urinary Tract Infections
- Benign Prostatic Hyperplasia (BPH)
- Bladder Neck Dysfunction
- Urethral Stricture
- Urological Syndromes
- Urinary Incontinence
- Urolithiasis and Hydronephrosis
- Tumors of the Urogenital System (bladder, upper urinary tract, kidney, prostate, testis)
- Genitourinary Malformations
- Urological Emergencies
- Bladder Catheterization and Other Urinary Drainage Techniques
- Urinary Diversions: Management and Complications

Applied Dietary Technical Sciences

- Techniques and methods of Nutritional Semiology and Nutritional Status Assessment to evaluate health status and disease risk
- Nutritional risk indicators predictive of disease development
- Metabolic processes affecting nutrients and the role of diet in preventing chronic degenerative diseases
- Evaluation of nutritional status and energy requirements
- Principles of Artificial Nutrition: enteral and parenteral nutrition
- Fundamentals of Nutritional Genomics (nutrigenetics/nutrigenomics, nutriepigenetics/nutriepigenomics)
- Basics of proper nutrition for health maintenance and application of diet therapy programs in physiological, paraphysiological, and pathological conditions
- Nutrition and chronic degenerative diseases
- Obesity phenotypes
- Intestinal microbiota and psychobiome
- Precision nutrition in predictive, preventive, personalized, and participatory medicine



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TEACHING METHODS

The course is divided into lectures. The teachers use didactic tools such as powerpoint presentation with explanatory diagrams, illustrations, and images to describe the pathologies. Attendance is mandatory.

FINAL EXAM

The examination consists of a written test.

The written test includes 100 multiple-choice questions covering the topics discussed in the five course modules. Each question has only one correct answer.

Candidates will have 100 minutes to complete the test.

Each correct answer is worth 0.3 points. A minimum of 60 correct answers (equivalent to a score of 18/30) is required to pass the exam.

No penalties will be applied for incorrect answers.

The final score will be based solely on overall performance in the test.

Students who achieve the maximum score (100 correct answers) will pass the exam with distinction ("lode").

The written test is designed to assess knowledge and comprehension of the subject matter, analytical and synthesis skills, and independent critical judgment. The overall evaluation will be based on the following criteria:

- **Ineligible:** Major gaps and/or inaccuracies in knowledge and understanding of the topics; limited analytical and synthesis skills.
- **18-20:** Just sufficient knowledge and understanding of the topics, with possible inaccuracies; sufficient analytical, synthesis, and independent judgment skills.
- **21-23:** Solid knowledge and understanding of routine topics; correct analytical and synthesis skills with coherent logical reasoning.
- **24-26:** Good knowledge and understanding of the topics; well-developed analytical and synthesis skills.
- **27-29:** Comprehensive knowledge and understanding of the topics; strong analytical and synthesis skills; good independent judgment.
- **30-30L:** Excellent knowledge and understanding of the topics; outstanding analytical and synthesis skills; excellent independent judgment.

In the presence of critical situations, the Commission may decide to modify the exam format by adding an oral test

RECOMMENDED TEXTBOOKS AND SUGGESTED READINGS

Gastroenterology

Harrison's Principle of Internal Medicine

Sleisenger and Fordtran's gastrointestinal and liver disease Reviews and Guidelines from PubMed

Endocrinology

Harrison's Principle of Internal Medicine (chapter of Endocrinology)

Manuale di Endocrinologia, A. Lenzi. Carocci Editore 2023

Nephrology

Evidence-Based Nephrology, 2° Edition. (English Edition): Jonathan C. Craig, Donald A. Molony, Giovanni F.M. Strippoli. Wiley Blackwell

Urology

Smith and Tanagho's General urology, Jack McAninch, Tom Lue, Mc Grow Hill Education.

Campbell-Walsh Urology 11th Edition Review Elsevier

Applied Dietary Technical Sciences



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Janice L. Kelly, Raymond Morrow, Krause and Mahan's Food & The Nutrition Care Process. Elsevier
16th Edition (27-09-2022) ISBN: 9780323810258