Syllabus Master's Degree Course in Medicine and Surgery

DISEASES OF THE RESPIRATORY AND URO-NEPHROLOGICAL SYSTEM

Third year, second semester (10 academic credits [CFU])

Teachers

Subject	Academic credits (CFU)	Lecturer
Respiratory diseases	3	VANCHERI Carlo
Thoracic surgery	1	CUSUMANO Giacomo
Kidney diseases and transplantation	2	ZANOLI Luca
Urology	2	RUSSO Giorgio
Applied pharmacology	1	SORTINO Maria Angela
Applied diagnostics	1	BASILE Antonello

Learning outcomes

Subject	Learning outcomes
Respiratory diseases	By the end of the module, students are expected to: • Understand the pathophysiology and clinical features of major respiratory diseases. • Recognize the diagnostic and therapeutic approaches to common respiratory conditions. • Interpret clinical findings in the context of pulmonary function and imaging data. At the end of the module the student will understand the key mechanisms, presentation, and management principles of respiratory disorders.
Thoracic surgery	By the end of the module, students are expected to: • Know the indications for major thoracic surgical interventions. • Understand preoperative assessment and postoperative care in thoracic procedures. • Identify surgical approaches for lung cancer and other thoracic pathologies. At the end of the module the student will understand the principles of surgical management of thoracic conditions, including risk stratification and outcomes.

Kidney diseases and transplantation	By the end of the module, students are expected to: • Understand the pathophysiology of acute and chronic kidney disease. • Know the clinical approach to diagnosis and monitoring of renal dysfunction. • Recognize the principles of renal replacement therapy and transplantation. At the end of the module the student will understand major renal pathologies and the rationale for therapeutic strategies including transplantation.
Urology	By the end of the module, students are expected to: • Know the most frequent urological conditions and their clinical presentation. • Understand the diagnostic algorithms for hematuria, urinary retention, and infections. • Recognize the indications for surgical and pharmacological treatments in urology. At the end of the module the student will understand the clinical approach to common urological disorders and the rationale for their treatment.
Applied pharmacology	By the end of the module, students are expected to: • Understand the pharmacological principles underlying the treatment of respiratory and urological-renal diseases. • Recognize the main drug classes used in these systems and their mechanisms of action. • Be aware of relevant side effects, interactions, and contraindications. At the end of the module the student will understand the rational use of pharmacological agents targeting the respiratory and uro-nephrological systems.
Applied diagnostics	By the end of the module, students are expected to: • Understand the indications and appropriateness of the main radiological exams for respiratory and uro-nephrological diseases. • Recognize key radiological findings relevant to diagnosis and follow-up of common clinical conditions. • Integrate radiological data with clinical and laboratory evaluation. At the end of the module the student will understand the use and interpretation of key diagnostic tools in respiratory and uro-nephrological medicine.

Prerequisites

Subject	Prerequisites
Respiratory diseases	Attainment of the educational objectives set by prerequisite courses.
Thoracic surgery	
Kidney diseases and transplantation	
Urology	

Applied pharmacology	
Applied diagnostics	

Course contents

Subject	Course contents
Respiratory diseases	• Anatomy and physiology of the respiratory system • Asthma and chronic obstructive pulmonary disease (COPD) • Interstitial lung diseases • Respiratory infections: pneumonia, tuberculosis • Pulmonary neoplasms: diagnostic approach • Pulmonary function tests and their clinical use
Thoracic surgery	• Oncological pleuro-pulmonary diseases, including lung cancer and pleural mesothelioma. • Mediastinal disorders, including primary mediastinal neoplasms, mediastinitis, and mediastinal syndrome. • Pleural diseases, such as pneumothorax and pleural effusion. • Diagnostic and therapeutic techniques, including bronchoscopy, video-assisted thoracoscopic surgery (VATS), and surgical approaches to the thoracic cavity
Kidney diseases and transplantation	• Acute kidney injury and chronic kidney disease • Nephrotic syndrome • Therapy options for nephroprotection • Diagnostic tests: serum creatinine, eGFR, urinalysis • Renal replacement therapies: dialysis and transplantation
Urology	• Benign prostatic hyperplasia and lower urinary tract symptoms • Urolithiasis and urinary tract infections • Hematuria: differential diagnosis • Urological neoplasms: bladder, prostate, kidney • Urodynamics and cystoscopy
Applied pharmacology	• Bronchodilators, corticosteroids, and antibiotics in respiratory diseases • Diuretics, RAAS inhibitors, and immunosuppressants in renal diseases • Alpha-blockers, 5-alpha reductase inhibitors, and antibiotics in urology • Drug nephrotoxicity and dose adjustments in renal impairment
Applied diagnostics	• Chest X-ray: indications and systematic interpretation in pneumonia, COPD, pleural effusion. • High-resolution chest CT: role in interstitial lung diseases. • Renal and bladder ultrasound: indications in acute kidney injury, hydronephrosis, urinary retention. • Contrast-enhanced abdominal CT: evaluation of urinary tract and renal masses. • Principles of imaging appropriateness and clinical-diagnostic criteria.

Assessment methods

Subject	Assessment methods
Respiratory diseases	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 grade is determined by the weighted average of the scores obtained in the course subjects. The oral examination consists of an interview during which questions will cover at least three different topics from the course curriculum. The assessments aim to evaluate: i) the level of knowledge in the disciplines; ii) the ability to apply this knowledge to solve specific problems related to the disciplines (autonomous problem-solving); iii) clarity of expression; iv) proficiency in medical-scientific language. The assessment of learning can also be conducted remotely if the conditions necessitate it. 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. • 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. • 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.
Thoracic surgery	
Kidney diseases and transplantation	
Urology	
Applied pharmacology	
Applied diagnostics	

Examples of common questions and/or exercises

Subject	Examples of common questions and/or exercises
Respiratory diseases	• What are the main differences between asthma and COPD? • What is the role of spirometry in respiratory diagnosis? • Which imaging modality is preferred for interstitial lung disease? • Exercise: Interpret a case with shortness of breath and reduced FEV1/FVC.
Thoracic surgery	• When is surgery indicated in lung cancer?

	• What are the advantages of VATS over traditional thoracotomy? • What are the risks of pneumonectomy?
Kidney diseases and transplantation	• How is chronic kidney disease staged? • What are the main causes of acute kidney injury? • What are the indications for kidney transplantation? • Exercise: Interpret changes in serum creatinine and urine findings.
Urology	• What are the typical symptoms of BPH? • What is the first-line treatment for uncomplicated cystitis? • Which imaging technique is preferred for urolithiasis?
Applied pharmacology	• What is the mechanism of action of beta-2 agonists? • Which drugs require dose adjustment in chronic kidney disease? • What are common nephrotoxic medications?
Applied diagnostics	• What are the key radiographic features of a community-acquired pneumonia? • When should a chest CT be preferred over a chest X-ray? • What ultrasound findings suggest urinary obstruction? • Which imaging modality is appropriate for suspected renal malignancy? • What are the criteria for choosing CT versus ultrasound in renal colic?

Reference texts

Subject	Textbooks
Respiratory diseases	• Harrison's principles of internal medicine, 22nd edition. McGraw Hill. Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Thoracic surgery	Educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Kidney diseases and transplantation	• Harrison's principles of internal medicine, 22nd edition. McGraw Hill. Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Urology	• Urologic Principles and Practice, Christopher R. Chapple, William D. Steers, Christopher P. Evans, Springer Any additional educational material (slides, videos, handouts, etc.) will be distributed or indicated during the lessons.
Applied pharmacology	• Katzung's Basic & clinical pharmacology, Lange 2023 • Goodman & Gilman's pharmacological basis of therapeutic, Mc Graw Hill 2023 Any additional 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
Respiratory diseases	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.
Thoracic surgery	
Kidney diseases and transplantation	
Urology	
Applied pharmacology	
Applied diagnostics	

Attendance

Subject	Attendance
Respiratory diseases	Mandatory attendance.
Thoracic surgery	
Kidney diseases and transplantation	
Urology	
Applied pharmacology	
Applied diagnostics	

Course schedule

Subject	Course schedule
Respiratory diseases	Students may refer to the recommended textbooks to identify the correspondence between the topics covered in the syllabus and the relevant chapters.
Thoracic surgery	
Kidney diseases and transplantation	
Urology	
Applied pharmacology	
Applied diagnostics	