

**Degree in Medicine and Surgery**

***Integrated course: SISTEMATIC PATHOLOGY I (10 CFU)***

**SSD : MED-10, MED-11, MED-21, MED-22, MED-23**

**Coordinator: Francesco Prati**

**Cardiovascular diseases**

**MED-11. N. CFU: 2**

**Teacher: Francesco Prati (2 CFU) [francesco.prati@unicamillus.org](mailto:francesco.prati@unicamillus.org)**

**Respiratory diseases**

**MED-10. N.CFU: 2**

**Teacher: Paola Rogliani. [paola.rogliani@uniroma2.it](mailto:paola.rogliani@uniroma2.it)**

**Coppola Angelo. [coppolangelo@gmail.com](mailto:coppolangelo@gmail.com)**

**Cardiac Surgery**

**MED-23. N.CFU: 2**

**Teacher: Ruggero DePaulis. [ruggero.depaulis@unicamillus.org](mailto:ruggero.depaulis@unicamillus.org)**

**Vascular Surgery**

**MED 22 : N.CFU: 3**

**Teacher: Eugenio Martelli. [eugenio.martelli@unicamillus.org](mailto:eugenio.martelli@unicamillus.org)**

**Toracic Surgery**

**MED 21 : N. CFU: 1**

**Teacher: Marco Lirici . [marco.lirici@unicamillus.org](mailto:marco.lirici@unicamillus.org)**

**Subject: Cardiovascular diseases**

**MED-11. N. CFU: 2**

**Teacher: Francesco Prati (2 CFU) [francesco.prati@unicamillus.org](mailto:francesco.prati@unicamillus.org)**

**PREREQUISITES**

**Human Anatomy, Histology, Microbiology, Human Physiology, General Pathology.**

## LEARNING OBJECTIVES

The learning objectives will provide students with the adequate knowledge about epidemiology, etiology, pathogenesis, diagnosis, prognosis and treatment of the cardiovascular diseases.

Knowledge of the main diagnostic and / or therapeutic techniques most commonly used in clinical practice complete the course.

## LEARNING OUTCOMES

At the end of the course, the student must demonstrate that they have acquired adequate knowledge of the topics covered by the study program regarding the main clinical, diagnostic and therapeutic aspects of cardiovascular diseases.

## COURSE SYLLABUS ( From the text Hurst 14<sup>th</sup> edition)

### ❖ LESSON 1 (Prof. F. Prati)

Atherosclerosis and vulnerable plaque

(Chapter 32)

### ❖ LESSON 2 (Prof. F. Prati)

Coronary Thrombosis, Coronary Blood Flow (Chapter 33)

Hypertension (Chapter 23)

### ❖ LESSON 3 (Prof. F. Prati)

Cardiovascular Risk Factors: Diabetes, Hyperlipidemia, Smoking (Chapter 28-29-30)

Evaluation and Management of Stable Ischemic Heart Disease (Chapter 43)

### ❖ LESSON 4 (Prof. F. Prati)

Cardiovascular Pharmacology

### ❖ LESSON 5 (Prof. F. Prati)

Acute Coronary Syndromes: Definition, Evaluation and Management of Non-ST Segment

Elevation Myocardial Infarction and ST-Segment Elevation Myocardial Infarction, Sudden Cardiac Death

(Chapter 36, 37, 39, 40)

### ❖ LESSON 6 (Prof. F. Prati)

Cardiovascular Diagnostics: electrocardiography, electrocardiographic exercise testing, echocardiography, computed tomography, magnetic resonance, cardiac catheterization and cardiac angiography

❖ LESSON 7 (Prof. L. Gatto)

Heart Failure: pathophysiology, diagnosis and management  
(Chapter 68, 70, 71)

❖ LESSON 8 (Prof. F. Brandimarte)

Atrial Fibrillation, Atrial Flutter and Atrial Tachycardia (Chapter 83)  
Wolff-Parkinson-White Syndrome  
Ventricular Arrhythmias (Chapter 85)

❖ LESSON 9 (Prof. L. Gatto)

Classification of Cardiomyopathies (CMP), Dilated CMP, Hypertrophic CMP, Restrictive CMP and Arrhythmogenic CMP (Chapter 57, 58, 59, 61, 62)

❖ LESSON 10 (Prof F. Brandimarte)

Bradyarrhythmias, Pacemakers and Defibrillators (Chapter 86, 89)  
Myocarditis and Pericardial Diseases (Chapter 63, 66)

## **COURSE STRUCTURE**

The course is divided into 10 lessons of 2 hours each, during which the main topics concerning the pathologies of the cardiovascular system will be addressed with the support of multimedia material through an interactive mode with the students, who are required to attend in class.

## **COURSE GRADE DETERMINATION**

Evaluation carried out through a written and oral exam which will cover the topics presented in the didactic program.

## **COURSE GRADE DETERMINATION**

Students will sustain an oral and written (multiple choice quiz ) examination.

The multiple choice quiz examination will be structured with a single correct answer to the multiple questions on the selected topics. Questions will be relevant to the topics that are part of the didactic program. Students will provide answers to N 60 multiple choice quiz pertinent to the five subjects of the integrated course. The score will equal 1 for every correct answer. A minimum score of a score of 36 /60 in the multiple choice quiz part is required to qualify for the oral part. The multiple choice quiz will serve as a barrage to the next oral part. It is during oral test that the Examining Committee will evaluate student's autonomy of judgement (making judgements), communication skills and

learning skills of the student according to the Dublin descriptors. The final evaluation will be mainly based on the result of the oral part.

## **READING MATERIALS**

- Hurst's. The Heart, 14 edizione.
- ESC Textbook of Cardiovascular Medicine.

## **Subject: Respiratory diseases**

### **MED-10. N. CFU: 2**

Prof.ssa Paola Rogliani (paola.rogliani@uniroma2.it)

Dr. Coppola Angelo (coppolangelo@gmail.com)

## **PREREQUISITES**

Human Anatomy, Histology, Microbiology, Human Physiology, General Pathology.

## **LEARNING OBJECTIVES**

The learning objectives will provide students with the adequate knowledge about epidemiology, etiology, pathogenesis, diagnosis, prognosis and treatment of then major respiratory diseases.

Knowledge of the main diagnostic and / or therapeutic techniques most commonly used in clinical practice completes the course.

## **LEARNING OUTCOMES**

At the end of the course, the student must demonstrate that they have acquired adequate knowledge of the topics covered by the study program regarding the main clinical, diagnostic and therapeutic aspects of respiratory system diseases.

## **COURSE SYLLABUS**

- 1 Introduction to pathologies of the respiratory system. Special anatomy and physiology of the respiratory system, clinical semeiotics of the main symptoms and signs of respiratory diseases: cough, dyspnoea, haemophtoe and chest pain, rales, wheezing, cyanosis, digital hippocratism. Other non-specific symptoms and signs associated with respiratory disease

- 2 Techniques and basic principles of interpretation of laboratory tests and respiratory physiology, respiratory function tests, arterial blood gas analysis and oximetry; walk test; polygraphic monitoring during sleep, clinical semiotics of the main symptoms and signs of respiratory diseases: cough, dyspnoea, haemoptoe and chest pain, rales, wheezing, cyanosis, digital hippocratism. Other non-specific symptoms and signs associated with respiratory disease
- 3 Respiratory infectious diseases: community acquired (CAP) and nosocomial (HAP) pneumonia, pneumonia in the immunocompromised host, aspiration pneumonia (ad ingestis), lung abscess. Definition, Epidemiology, Main Pathogens, Risk Factors, Pathophysiology, Pathological Anatomy, Clinical and Instrumental Diagnosis, Natural History, Complications and Therapy
- 4 Pulmonary tuberculosis. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 5 Lung Cancer: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 6 Acute and chronic respiratory failure. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy. Oxygen therapy and non-invasive mechanical ventilation: basic principles, indications, side effects.
- 7 Pulmonary embolism, pulmonary arterial hypertension and other pathologies of the pulmonary circulation: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 8 Diffuse infiltrative lung diseases: idiopathic pulmonary fibrosis, sarcoidosis and other pulmonary interstitial diseases; definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 9 Bronchial asthma and respiratory immunoallergic diseases: definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 10 Chronic obstructive pulmonary disease (COPD): definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy
- 11 Pleural Pathology: pleurisy and pleural effusions; pneumothorax; mesothelioma. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental

diagnosis, natural history, complications and therapy. Thoracentesis and management of pleurostomy.

- 12 Bronchiectasis. Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy.
- 13 Obstructive sleep apnea syndrome (OSAS). Definition, epidemiology, risk factors, pathophysiology, pathological anatomy, clinical and instrumental diagnosis, natural history, complications and therapy.

## **COURSE STRUCTURE**

The course is divided into 10 lessons of 2 hours each, during which the main topics concerning the pathologies of the respiratory system will be addressed with the support of multimedia material through an interactive mode with the students, who are required to attend in class.

## **COURSE GRADE DETERMINATION**

Students will sustain an oral and written (multiple choice quiz ) examination.

The multiple choice quiz examination will be structured with a single correct answer to the multiple questions on the selected topics. Questions will be relevant to the topics that are part of the didactic program. Students will provide answers to N 60 multiple choice quiz pertinent to the five subjects of the integrated course. The score will equal 1 for every correct answer. A minimum score of a score of 36 /60 in the multiple choice quiz part is required to qualify for the oral part. The multiple choice quiz will serve as a barrage to the next oral part. It is during oral test that the Examining Committee will evaluate student's autonomy of judgement (making judgements), communication skills and learning skills of the student according to the Dublin descriptors. The final evaluation will be mainly based on the result of the oral part.

## **OPTIONAL ACTIVITIES**

None

## **READING MATERIALS**

Harrison's Principles of Internal Medicine, 20e J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo

**Subject:** Vascular Surgery

**MED-22. N. CFU:** 3

**Teacher:** Eugenio Martelli, [eugenio.martelli@unicamillus.org](mailto:eugenio.martelli@unicamillus.org)

**PREREQUISITES** Having passed the exams of the first two years of the degree course: in particular, are considered to be fundamental to the learning of Vascular Surgery examinations of Human Anatomy, Histology, Biochemistry, Microbiology, Human Physiology, and General Pathology.

**LEARNING OBJECTIVES** Knowledge of diseases related to the extreme consequences of the main pathology linked to aging, namely atherosclerosis, is central to the training of the modern health worker. In fact, it is important to keep in mind the progressive increase in the average age and the progressive growth of the diabetic "pandemic", which is one of the most serious determinants of atherosclerosis. The knowledge, therefore the prevention and treatment, of peripheral vascular diseases is able to increase the average age of the population (e.g. by preventing the rupture of aortic aneurysms) and to improve their quality of life by avoiding their disability (p. e.g. preventing cerebrovascular accidents and lower limb loss due to gangrene). In recent years, there has been a steady growth in the demand for angiological training by General Medicine, as well as in the demand for mass diagnostic tests (such as ultrasound Doppler), and vascular specialists.

**LEARNING OUTCOMES** At the end of the course, the student must know / be able to perform the correct exposure of the below arguments, according to the classical patterns of clinical methodology; capability of diagnosis and differential diagnosis.

## COURSE SYLLABUS

- 1) Atherosclerosis and principles of Hemodynamics.
- 2) Clinical semiotics and instrumental diagnosis of vascular apparatus and pathologies
- 3) Peripheral vascular disease.
- 4) Acute limb ischemia.
- 5) Cerebrovascular insufficiency.
- 6) Celiac-mesenteric insufficiency, acute and chronic.
- 7) Renovascular hypertension.
- 8) Aortic aneurysms.
- 9) Peripheral aneurysms

- 10) Aortic dissections.
- 11) Vascular trauma.
- 12) Diseases of the venous system.
- 13) Diseases of the lymphatic system.
- 14) Thoracic outlet syndrome.
- 15) Vasospastic diseases.

## COURSE STRUCTURE

Fifteen lessons of 2 hours each, during which the major arterial-venous-lymphatic diseases of the vascular apparatus will be addressed, with the help of multimedia material and, possibly, the presence of a patient with the disease subject of the lesson (project still to be agreed with Unicamillus). Interactive mode with the students, who are required the compulsory attendance. Two written multiple choice tests, anonymous, will be conducted at the middle and end of the cycle of lessons, to test the penetration of the topics covered in the students and to focus their attention on the most relevant concepts.

## COURSE GRADE DETERMINATION

Evaluation carried out through an oral exam lasting 15-30 minutes. A first topic chosen by the candidate; a second argument (even more arguments, if necessary) and a case study proposed by the Committee. The final assessment will be based on the ability to discursively organize knowledge, critical reasoning skills on the study carried out, quality of exposure, competence in the use of specialized vocabulary, effectiveness, linearity. Mark out of thirty (minimum 18/30, maximum 30/30, possibly with honors).

## OPTIONAL ACTIVITIES

Potential practical exercises in the Vascular Surgery ward in one of the local hospitals (project still to be agreed with Unicamillus).

## READING MATERIALS

Handbook of Patient Care in Vascular Diseases (6th edition),  
by Rasmussen/Clouse/Tonnessen.  
Wolters Kluwer (Lippincott Williams & Wilkins Handbook

Subject: **Chest Surgery**

**MED/21 N. CFU: 1**

**Teacher: Marco Maria Lirici (1cfu)**

#### PREREQUISITES

No specific prerequisites are required for learning Chest Surgery, besides basic knowledge of endothoracic organs anatomy.

#### LEARNING OBJECTIVES

Same of the Course

#### LEARNING OUTCOMES

Knowledge and understanding

Knowledge of the basic principles of thoracic surgery, mainly focusing on the diseases requiring surgical management, their etiology and pathogenesis, their symptoms, diagnosis and treatment.

Students will be able of:

- ☐ knowing the surgical anatomy of chest
- ☐ knowing the principles of diagnosis and imaging techniques in the field of thoracic diseases requiring surgical management
- ☐ understanding the differential diagnosis of mediastinal and chest masses
- ☐ knowing the basics of lung and pleural and chest wall neoplasms
- ☐ knowing the basics of lung and pleural benign diseases requiring surgical treatment
- ☐ knowing the fundamentals of esophageal malignant tumors
- ☐ knowing the fundamentals of benign esophageal functional and organic diseases requiring surgical treatment
- ☐ knowing the basic principles of surgical treatment of the afore mentioned diseases

Students must be able to apply their knowledge to the understanding and resolution/management of lung and mediastinal diseases requiring surgery, also regarding new issues and broad and interdisciplinary contexts.

### Communication skills

Students must be able to communicate their conclusions, knowledge and rationale concerning thoracic diseases requiring surgical treatment, integrating them with scientific language properties

### Autonomous judgement

Students must have the ability to integrate knowledge and manage complexity, as well as to make judgments based on the acquired information, including surgical indication and decision making.

### Learning ability

Students must have developed those learning skills that allow them to continue to study mostly in a self-directed and autonomous way. More specifically, they should be able to collect, organize and critically interpret new scientific knowledge from the various resources and available databases, and identify their training needs, possibly planning self-training courses.

## COURSE SYLLABUS

Basics of surgical anatomy of chest

Fundamentals of diagnosis and imaging examinations in thoracic surgery

Preoperative physiological evaluation

Chest wall diseases: Pectus deformities, Thoracic outlet syndrome, chest wall tumors

Pleura: Pneumothorax, Chylothorax, Empyema, Pleural effusion, Solitary fibrous tumors, Malignant pleural mesothelioma

Trachea: tracheobronchial injuries, stenosis and fistulae, Tracheal tumors

Mediastinum: Myasthenia gravis, Thymic tumors, Mediastinal germ cell tumors, Lymphomas, and other hematologic diseases

Lung: Surgery for emphysema, Lung abscess, Lung cancer screening, Solitary pulmonary nodule, Staging

lung cancer, Lung cancer, Superior sulcus tumors, Carcinoid tumors, Metastatic tumors of the lung

Esophagus: Benign tumors, esophageal malignancies, Staging, Indications to surgery, Esophageal functional diseases, Differential diagnosis, Decision making process and Indication to surgery of functional diseases of foregut

## COURSE STRUCTURE

The teaching method adopted is interactive and articulated in 5 lessons of frontal teaching (2 hours each) with projection of PowerPoint presentations and scientific videos, including debates and resolutions of case studies. Attendance is mandatory.

### **COURSE GRADE DETERMINATION**

Students will sustain an oral and written (multiple choice quiz ) examination.

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### **OPTIONAL ACTIVITIES**

None

### **READING MATERIALS**

Pocket Manual of General Thoracic Surgery. Amin Madani, Lorenzo Ferri, Andrew Seely (Eds). 2015 Edition. Springer. ISBN-13: 978-3319174969, ISBN-10: 3319174967

Decision making in Thoracic Surgery. An algorithmic approach. Wickii T Vignesvaran, John A Odell. Jaippee The Health Sciences Publisher Ltd. First Edition 2018. ISBN:978-93-5270-038

**Subject Cardiac Surgery****MED-23. N.CFU: 2****Teacher: Ruggero De Paulis [ruggero.depaulis@unicamillus.org](mailto:ruggero.depaulis@unicamillus.org)****PREREQUISITES**

Having completed the first two years of Medicine and Surgery: in particular, are considered to be fundamental to the learning of Cardiac Surgery the exams of Human Anatomy, Histology, Human Physiology, and General Pathology.

**LEARNING OBJECTIVES**

To acquire knowledge of cardiac diseases, known to be the main cause of premature deaths. All cardiovascular diseases, whether ischemic or of different etiologies, are responsible for reduced quality of life, reduced physical capacity, disability and eventually death. Understanding the pathology and learning how to reach a timely diagnosis will help in achieving the best form of treatment, avoiding progressive worsening of the pathology and of the symptoms.

**LEARNING OUTCOMES**

At the end of the course, the student must be able to recognize the symptoms of the most common cardiac pathology, to understand the series of action needed for a prompt diagnostic pathway and to know the most appropriate form of therapy.

**COURSE PROGRAM**

1) Ischemic heart diseases. Surgical therapies. Rationale and methodology

2) Valvular disease

Main causes of valve diseases

Congenital, Rheumatic disease, Ischemic disease, Endocarditis, Degenerative

Aortic stenosis

Etiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Valvuloplasty, TAVI, Surgical

#### Aortic insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, TAVI, Surgical

#### Mitral stenosis:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Valvuloplasty, TAMI, Surgical

#### Mitral insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Physical examination, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

#### Tricuspid insufficiency:

Ethiology, Physiopathology

Diagnosis: Symptoms, Semeiotic, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

#### Tricuspid stenosis and pulmonary disease

Ethiology, Physiopathology

Diagnosis Symptoms, Semeiotic, Lab. Tests, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

#### Infective endocarditis

Ethiology, Physiopathology

Diagnosis Symptoms, Semeiotic, Lab. Tests, Ecg changes, Echocardiogram, Catheterism

Therapy: Medical, Percutaneous Interventional , Surgical

### 3) Congenital disease

Atrial septum defect (physiopathology, diagnosis and treatment)

Ventricular septum defect (physiopathology, diagnosis and treatment)

Tetralogy of Fallot (physiopathology, diagnosis and treatment)

Aortic coarctation (physiopathology, diagnosis and treatment)

Pulmonary atresia (physiopathology, diagnosis and treatment)

Trasposizione dei grossi vasi (physiopathology, diagnosis and treatment)

## **COURSE STRUCTURE**

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## **COURSE GRADE DETERMINATION**

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## **OPTIONAL ACTIVITIES**

None.

## **READING MATERIALS**

Cardiac Surgery, Kirklin /Barrat-Boyes. Ed Churchill, Livingstone